Via EFS Web: April 22, 2010

## IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants: John S. Babcook et al. Docket No. ABX-226-US-NP

Patent No.: 7,285,269 Group Art Unit No.: 1644

Issued: October 23, 2007 Examiner: Zachary Skelding and

Phillip Gambel

For: ANTIBODIES DIRECTED TO TUMOR NECROSIS FACTOR

## CERTIFICATE OF CORRECTION UNDER 37 CFR §§ 1.322 AND 1.323

ATTN: Certificate of Corrections Branch Commissioner for Patents P.O. Box 1450 Alexandria, VA 22313-1450

Dear Sir:

Enclosed is a Certificate of Correction on an appropriate form. Applicants believe that it corrects errors by both the Office and by Applicants. Applicants do not believe that these corrections add any new matter to the patent. A number of sequences are added to the sequence listing. These sequences were part of the sequence listing submitted on November 28, 2006. The sequences themselves were disclosed in the application-as-filed, although they were not originally part of the sequence listing. Hence, Applicants do not believe that the added sequences constitute new matter. The Office is hereby authorized to charge the fee of \$100 to Deposit Account No. 01-0519 for this Certificate of Correction. If further fees are due, the examiner is hereby authorized to charge such fees to the same deposit account.

Sincerely,

Rosemary Sweeney Registration No. 52,264

Direct Dial No. (206) 265-7817

Date: April 22, 2010

Amgen Inc. Law Department 1201 Amgen Court West Seattle, WA 98119 Telephone (206) 265-7000

#### CERTIFICATE OF EFS-Web TRANSMISSION

I hereby certify that this paper (along with any referred to as being attached or enclosed) is being transmitted electronically through EFS-Web to the Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313, on the date indicated below:

| /Kathleen F. Prindle/ | April 22,2010 |
|-----------------------|---------------|
| Kathleen F. Prindle   | Date          |

PATENT NO.

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**APPLICATION NO.** : 10/727,155

ISSUE DATE

: October 23, 2007

INVENTOR(S)

: Babcook et al.

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

On page 1 (title page), under "Foreign Patent Documents, please insert -- EP 0 614 984 A, 09-14-1994, Miles Inc.

On page 3 (title page), under "non Patent Literature Documents" please insert:

--Baselga et al. Journal of clinical Oncology. 18(4):904-914 (2000).

Glennie et al. Immunology Today. 21(8):403-410 (2000).

Kempeni. Annals of the Rheumatic Diseases. 58(3):170-172 (1999).

Kempeni. Annals of the Rheumatic Diseases. 59(Supp. 1):144-145 (2000).

Mukhtyar et al. Journal of Forensic Sciences. 64(Supp. 4):31-36 (2005).

Taylor. Current Opinion in Rheumatology. 13(3):164-169 (2001).--.

On page 3, Col. 1, 14<sup>th</sup> line under the heading "Other Publications", please delete "Characterizaion" and insert -- Characterization--, therefor.

On page 3, Col. 1, 25th line under the heading "Other Publications", please delete "Appliation" and insert -- Application--, therefor.

On page 3, Col. 1, 31st line under the heading "Other Publications", please delete "Immuniation" and insert -- Immunization --, therefor.

On page 3, Col. 1, 46<sup>th</sup> line under the heading "Other Publications", please delete "Pseudomanas" and insert -- Pseudomonas --, therefor.

On page 3, Col. 2 (Other Publications), line 9, please delete "Sciencesl" and insert -- Sciences--, therefor.

On page 3, Col. 2 (Other Publications), line 12, please delete "Lipopolysacchardie" and insert --Lipopolysaccharide--, therefor.

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On page 3, Col. 2 (Other Publications), line 18, please delete "LPS-induced" and insert -- LPS-Induced--, therefor.

On page 3, Col. 2 (Other Publications), line 44, please delete "libraries," and insert --libraries."--, therefor.

On page 3, Col. 2 (Other Publications), line 65, please delete "7(3)251" and insert --7(3):251--, therefor.

In Col. 2, line 41, before "SEQ" please insert -- ( --.

In Col. 2, line 44, please delete "lie" and insert -- Ile--, therefor.

In Col. 2, line 55, please delete "(CDR 1)" and insert --(CDR1)--, therefor.

In Col. 3, line 14, please delete "lie" and insert -- Ile--, therefor.

In Col. 3, line 45, please delete "of" Val" and insert -- of "Val --, therefor.

In Col. 3, line 54, please delete "Gin" and insert --Gln--, therefor.

In Col. 3, line 59, please delete "of"Gln" and insert –of "Gln --, therefor.

In Col. 4, line 3, please delete "of "Gly" and insert -- of "Gly --, therefor.

In Col. 4, line 14, please delete "of"Gly" and insert -- of "Gly --, therefor.

In Col. 7, line 19, please delete "cell" and insert --cells--, therefor.

In Col. 18, line 21, please delete "understood." and insert --- understood --, therefor.

In Col. 20, line 11, please delete "J" and insert --J. --, therefor.

In Col. 26, line 66, please delete "FRI" and insert –FR1,--, therefor.

In Col. 31, line 3, please delete "described, the" and insert --described the--, therefor.

In Col. 35, line 2, please delete "(EDC.," and insert --(EDC, --, therefor.

In Col. 40, line 5, please delete "HA½" and insert --½ HA--, therefor.

In Col. 40, line 12, please delete NaHCO<sub>384</sub>" and insert -- NaHCO<sub>3</sub> 8.4--, therefor.

In Col. 42, line 12, please delete "Isoptype" and insert --Isotype--, therefor.

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In Col. 43, line 34, please delete "0.0" and insert --0.01--, therefor.

In Col. 43, line 45, please delete "5μL" and insert --50μL--, therefor.

In Col. 44, lines 44-45, please delete "Neutralization of - - - - Assay" and insert the same on Line 45 as a Heading of the next paragraph.

In Col. 45, line 15, please delete "poptosis" and insert -- Apoptosis--, therefor.

In Col. 60, line 16, please delete "Structual Analysi" and insert -- Structural Analysis--, therefor.

In Cols. 59-64 (Table 31), please delete all of Table 31 and insert the attached Table 31 therefor.

In Cols. 63-66 (Table 32), please delete all of Table 32 and insert the attached Table 32 therefor.

In Cols. 65-74 (Table 33), please delete all of Table 33 and insert the attached Table 33 therefor.

In Cols. 73-82 (Table 34), please delete all of Table 34 and insert the attached Table 34 therefor.

In Col. 81, line 28, please delete "Determination" and insert -- Determination--, therefor.

In Col. 81, line 46, please delete "immunoglobuins" and insert --immunoglobulins--, therefor.

In Col. 301, please insert:

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--<210> 321
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<211> 5

<212> PRT

<213> Homo sapiens

<400> 321

Ser Tyr Asp Met His

Т

<210> 322

<211> 17

<212> PRT

<213> Homo sapiens

<400> 322

Val Ile Trp Ser Asp Gly Ser Ile Lys Tyr Tyr Ala Asp Ser Val Lys

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INVENTOR(S) : Babcook et al.

10 15 5 Gly

<210> 323

<211> 16

<212> PRT

<213> Homo sapiens

<400> 323

Glu Val Glu Ser Ala Met Gly Gly Phe Tyr Tyr Asn Gly Met Asp Val

10

<210> 324

<211> 11

<212> PRT

<213> Homo sapiens

<400> 324

Arg Ala Ser Gln Gly Ile Arg Ile Asp Leu Gly

<210> 325

<211> 7

<212> PRT

<213> Homo sapiens

<400> 325

Ala Ala Ser Thr Leu Gln Ser

1 5

<210> 326

<211> 9

<212> PRT

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```
<213> Homo sapiens
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Leu Gln His Lys Ser Tyr Pro Leu Thr
                 5
<210> 327
<211> 5
<212> PRT
<213> Homo sapiens
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Arg Asn Tyr Met Ser
<210> 328
<211> 16
<212> PRT
<213> Homo sapiens
<400> 328
Val Ile Tyr Ser Gly Asp Arg Thr Tyr Tyr Ala Asp Ser Val Lys Gly
                 5
                                                          15
<210> 329
<211> 7
<212> PRT
<213 > Homo sapiens
<400> 329
Gly Glu Gly Gly Phe Asp Tyr
```

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```
<210> 330
<211> 11
<212> PRT
<213> Homo sapiens
<400> 330
Arg Ala Ser Gln Ser Val Ser Ser Asn Leu Ala
                    5
<210> 331
<211> 7
<212> PRT
<213> Homo sapiens
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Gly Ala Ser Ile Arg Ala Thr
<210> 332
<211> 8
<212> PRT
<213> Homo sapiens
<400> 332
Gln Gln Tyr Asn Tyr Trp Trp Thr
 1
                     5
In Col. 301, line 35, Claim 2, please delete "antibody;" and insert --antibody--, therefor.
In Col. 301, line 36, Claim 2, after "claim 1" insert --, --.
In Col. 301, line 39, Claim 3, after "claim 1" insert --, --.
In Col. 301, line 53, Claim 8, please delete "bindivg" and insert --binding--, therefor.
```

## MAILING ADDRESS OF SENDER:

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**INVENTOR(S)** : Babcook et al.

In Col. 301, line 54, Claim 8, after "thereof", please insert --, --.

In Col. 301, line 54, Claim 8, please delete "light" and insert ---heavy---, therefor.

In Col. 301, line 55, Claim 8, please delete "heavy" and insert ---light---, therefor.

In Col. 302, line 29, Claim 13, please delete "light" and insert ---heavy---, therefor.

In Col. 302, line 30, Claim 13, please delete "heavy" and insert ---light---, therefor.

In Col. 302, line 32, Claim 13, please delete "wherein," and insert --wherein--, therefor.

In Col. 302, line 42, Claim 17, please delete "radioistope" and insert --radioisotope--, therefor.

In Col. 302, line 66, Claim 25, after "claim 13" please insert --, --.

In Col. 303, line 13, Claim 26, after "(CDR3)" please insert --comprising--.

In Col. 303, line 18, Claim 26, please delete "Len" and insert --Leu--, therefor.

In Col. 303, line 24, Claim 26, after "(CDR3)" please insert --comprising--.

In Col. 303, line 24, Claim 26, please delete "Gin" and insert --Gln--, therefor.

In Col. 303, line 26, Claim 27, after "thereof", please insert --, --.

## MAILING ADDRESS OF SENDER:

Table 31, 1

| V Heavy/D/J Germline                  |
|---------------------------------------|
| VH3-33/D5-5/JH6b<br>VH3-33/D5-5/JH6b  |
| VH3-33/D5-5/JH6b<br>VH3-33/D5-24/JH6b |
| VH3-33/D6-6/JH6b                      |
| VH3-33/D6-19/JH6b                     |
| VH3-53/D3-16/JH4b                     |
| VH3-53/D3-16/JH4b                     |
| VH3-53/D3-16/JH4b                     |
| Germline                              |
| VH3-33/D4-17/JH6b                     |
| VH3-33/D4-17/JH6b                     |
| VH3-33/D1-26/JH6b                     |
| Germline                              |
| VH3-30/D1-26/JH6b                     |
| VH3-30/D1-20/JH6b                     |
| VH3-30/D3-3/JH6b                      |
| Germline                              |
| VH4-4/D2-2/JH2                        |
| Germline                              |
| VH4-31/D1-20/JH6b                     |
| VH4-31/D1-20/JH6b                     |
| VH4-31/D1-20/JH6b                     |
| VH4-31/D1-20/JH6b                     |

| SEQ ID |             | \$ II I           |                                   | 4 1 1               | 1           |
|--------|-------------|-------------------|-----------------------------------|---------------------|-------------|
| NO:    | Single Cell | CDRZ              | FR3                               | CDR3                | rk4         |
| 267    | ı           | VIWYDGSNKYYADSVKG | RFTISRDNSKNTLYLQMNSLRAEDTAVYYCAR  |                     | MGQGTTVTVSS |
| 74     | 299 v. 2    | VIWSDGSIKYYADSVKG | RFTISRDNSKNTLYLQMNSLRAEDTAVYYCAR  | EVESAMGGFYYNGMDV    | MGQGTTVTVSS |
| 70     | 299 v. 1    | VIWSDGSIKYYADSVKG | RFTISRDNSKNTLYLQMNSLRAEDTAVYYCAR  | EVESAMGGFYYNGMDV    | WGQGATVTVSS |
| 38     | 148         | VIWYDGSIKYYADSVKG | RFTISRDNSKNTLYLQMNSLRAEDTAVYFCAR  | ETAILRGYYYYDMDV     | MGQGTTVTVSS |
| 78     | 313         | VIWSDGSNKYYADSVKG | RFTISRDNSKNTLYLQMNSLRAEDTAVYYCAR  | EKMATIKGYYYYGMDV    | WGQGTTVTVSS |
| 9      | 15          | VIWYDGSIKYYADSVKG | RFTISRDNSKNTLYLQMNSLRAEDTAVYYCAR  | EEQLVRGGYYYYGMDV    | WGQGTTVTVSS |
| 22     | 95          | VIWYDGSIKYYADSVKG | RFTISRDNSKNTLHLQMNSLRAEDTAVYYCAR  | EIAVAGGYYYGLDV      | MGQGTTVTVSS |
| 268    | ı           | VIYSGGSTYYADSVKG  | RFTISRDNSKNTLYLQMNSLRAEDTAVYYCAR  |                     | MGQGTLVTVSS |
| 46     | 250         | VIYSGDRTYYADSVKG  | RFTISRDNSKNTLYLQMNSLRAEDTAVYYCAR  | GEGGFDY             | MGQGTLVTVSS |
| 50     | 263         | VIYSGDRTYYADSVKG  | RFTI SRDNSKNTLYLQMNSLRAEDTAVYYCAR | GEGGFDY             | MGQGTLVTVSS |
| 54     | 269         | VIYSGDRTYYADSVKG  | RFTISRDNSKNTLYLQMNSLRAEDTAVYYCAR  | GEGGFDY             | MGQGTLVTVSS |
| 269    | 1           | VIWYDGSNKYYADSVKG | RFTISRDNSKNTLYLQMNSLRAEDTAVYYCAR  |                     | MGQGTTVTVSS |
| 58     | 280         | VIWSNGSNKYYADSVKG | RFTISRDNSKNTLYLQMNSLRAEDTAVYYCAR  | DNGVYVGYAYYYGMDV    | MGQGTTVTVSS |
| 62     | 282         | VIWSNGSNKYYADSVKG | RFTISRDNSKNTLYLQMNSLRAEDTAVYYCAR  | DNGVYVGYAYYYGMDV    | MGQGTTVTVSS |
| 99     | 291         | VIWSDGSNKYYADSVKG | RFTISRDNSKNTLYLQMNSLRAEDTAVYYCAR  | ELPNSGSYSGYYYYYGMDV | MGQGTTVTVSS |
| 270    | ı           | VISYDGSNKYYADSVKG | RFTISRDNSKNTLYLQMNSLRAEDTAVYYCAR  |                     | MGQGTTVTVSS |
| 42     | 234         | VISYDGSIKYYADSVKG | RFTISRDNSKNTLYLQVNSLRAEDTAVYYCAR  | EVRSGSYYYYYSMDV     | MGQGTTVTVSS |
| 34     | 140         | VISYDGSNKYYADSVKG | RFTISRDNSKNTLYLQMNSLRAEDTAVYYCAR  | DQDINWIYYYGMDV      | MGQGTTVTVSS |
| 14     | 28          | IISYDGSNKYYADSVKG | RFTISRDNSKNTLYLQMNSLRAEDTAVYYCVT  | YYDFWSGYLPGMDV      | MGQGTTVTVSS |
| 271    | 1           | RIYTSGSTNYNPSLKS  | RVTMSVDTSKNQFSLKLSSVTAADTAVYYCAR  |                     | WGRGTLVTVSS |
| 18     | 69          | RIYPTGSTNYNPSLKS  | RVTMSVDTSKNQFSLKLSSVTAADTAVYYCAG  | GWSYWYFDL           | WGRGTLVTVSS |
| 272    | ı           | YIYYSGSTYYNPSLKS  | RVTISVDTSKNQFSLKLSSVTAADTAVYYCAR  |                     | MGQGTTVTVSS |
| 2      | 2           | NIYYSGSTYYNPSLKS  | RVTISVDTSKNQFSLKLSSVTAADTAVYYCAR  | DSNQYNWNDEVYDYGLDV  | MGQGTTVTVSS |
| 10     | 25          | NIYYSGSTYYNPSLKS  | RVTISVDTSKNQFSLKLSSVTAADTAVYYCAR  | DSNQYNWNDEVYDYGLDV  | MGQGTTVTVSS |
| 30     | 131         | NIYYSGSTYYNPSLKS  | RVTISVDTSKNQFSLKLSSVTAADTAVYYCAR  | DSNOVNWNDEVYDYGLDV  | MGQGTTVTVSS |
| 26     | 123         | NIYYSGSTYYTPSLKS  | RVTISVDTSKNQFSLKLSSVTAADTAVYYCAR  | DSNQYNWNDEVYDYGLDV  | WGQGTTVTVSS |
|        |             |                   |                                   |                     |             |

Table 32. XENOMAX® Light Chain Analysis

| 273         -         Genniine         DIOMTOSPSSILASAVGBRVITTC         RASCGIRIDIG         WYQQKDGRADRRILIY           72         299         A30VKL/JTK4         DIOMTOSPSSILASAVGBRVITTC         RASCGIRIDIG         WYQQKDGRADRRILIY           68         291         A30VKL/JTK4         DIOMTOSPSSILASAVGBRVITTC         RASCGIRINIG         WYQQKDGRADRRILIY           44         22         A30VKL/JTK4         DIOMTOSPSSILASAVGBRVITTC         RASCGIRINIG         WYQQKDGRADRRILIY           12         A30VKL/JTK4         DIOMTOSPSSILASAVGBRVITTC         RASCGIRINIG         WYQQKDGRADRRILIY           12         A30VKL/JTK4         DIOMTOSPSSILASAVGBRVITTC         RASCGIRINIG         WYQQKDGRADRRILIY           12         A30VKL/JTK4         DIOMTOSPSSILASAVGBRVITTC         RASCGIRINIG         WYQQKDGRADRRILIY           24         95         A30VKL/JTK4         DIOMTOSPSSILASAVGBRVITTC         RASCGIRINIG         WYQQKDGRADRRILIY           274         95         A30VKL/JTK4         DIOMTOSPSSILASAVGBRVITTC         RASCGIRINIG         WYQQKDGRADRRILIY           274         -         Genaline         DIOMTOSPSSILASAVGBRVITTC         RASCGIRINIG         WYQQKDGRADRRILIY           280         A30VKL/JTK4         DIOMTOSPSSILASAVGBRVITTC         RASCGIRINIG         WYQQKDGRADRRILIY  | SEQ ID | Single Cell | V Карра/J   | FR1                     | CDR1             | FR2             |
|--|--------|-------------|-------------|-------------------------|------------------|-----------------|
| 299   A30VKI_JK4   DIQMTQSPSSISASVGDRVTITC   RASGGIRNDLG     291   A30VKI_JK4   DIQMTQSPSSISASVGDRVTITC   RASGGIRNDLG     291   A30VKI_JK4   DIQMTQSPSSISASVGDRVTITC   RASGGIRNDLG     2   | 273    | 1           | Germline    | DIOMIOSPSSLSASVGDRVTITC | RASQGIRNDLG      | WYQQKPGKAPKRLIY |
| 313   A30VKI/JR4   DIQMTQSPSSILSASVGDRVITTC   RASQGIRNDLG     221  | 72     | 299         | A30VK1/JK4  | DIQMTQSPSSLSASVGDRVTITC | RASQGIRIDLG      | WYQQKPGKAPKRLIY |
| 291         A30VKJ/JK4         DIQWTQSPSSILASASVGDRVTITC         RASQGIRNDLG           234         A30VKJ/JK4         DIQWTQSPSSILASASVGDRVTITC         RASQGIRNDLG           25         A30VKJ/JK4         DIQWTQSPSSILASASVGDRVTITC         RASQGIRNDLG           131         A30VKJ/JK4         DIQWTQSPSSILASASVGDRVTITC         RASQGIRNDLG           95         A30VKJ/JK4         DIQWTQSPSSILASASVGDRVTITC         RASQGIRNDLG           123         A30VKJ/JK4         DIQWTQSPSSILASASVGDRVTITC         RASQGIRNDLG           124         A30VKJ/JK4         DIQWTQSPSSILASASVGDRVTITC         RASQGIRNDLG           123         A30VKJ/JK4         DIQWTQSPSSILASASVGDRVTITC         RASQGIRNDLG           280         A30VKJ/JK4         DIQWTQSPSSILASASVGDRVTITC         RASQGIRNDLG           281         A30VKJ/JK4         DIQWTQSPSSILASASVGDRVTITC         RASQGIRNDLG           282         A30VKJ/JK4         DIQWTQSPSSILASASVGDRVTITC         RASQGIRNDLG           -         Germline         DIQWTQSPSILASASVGDRVTITC         RASQGIRNDLG           -         Germline         DIVWTQSPLSLLPVTLGQPASISC         RSSQSLLASNOTXIN           -         Germline         DIVWTQSPLSLPVTLGQPASISC         RSSQSLLASNOTXIN           -         Germline         DIVWTQSPLSLPVTLGQPASISC   | 80     | 313         | A30VK1/JK4  | DIQMIQSPSSLSASVGDRVTITC | RASQGIRNDLG      | WYQQKPGKAPKRLIY |
| 234         A30VKI/JK4         DIQWTQSPSSLSASVGDRVTITC         RASQDIRNDLG           2         A30VKI/JK4         DIQWTQSPSSLSASVGDRVTITC         RASQGIRNDLG           131         A30VKI/JK4         DIQWTQSPSSLSASVGDRVTITC         RASQGIRNDLG           15         A30VKI/JK4         DIQWTQSPSSLSASVGDRVTITC         RASQGIRNDLG           15         A30VKI/JK4         DIQWTQSPSSLSASVGDRVTITC         RASQGIRNDLG           123         A30VKI/JK4         DIQWTQSPSSLSASVGDRVTITC         RASQGIRNDLG           123         A30VKI/JK4         DIQWTQSPSSLSASVGDRVTITC         RASQGIRNDLG           280         A30VKI/JK4         DIQWTQSPSSLSASVGDRVTITC         RASQGIRNDLG           280         A30VKI/JK1         DIQWTQSPSSLSASVGDRVTITC         RASQGIRNDLG           280         A30VKI/JK1         DIQWTQSPSSLSASVGDRVTITC         RASQGIRNDLG           280         A30VKI/JK1         DIQWTQSPSSLSASVGDRVTITC         RASQGIRNDLG           281         A30VKI/JK1         DIQWTQSPSSLSASVGDRVTITC         RASQGIRNDLG           282         A30VKI/JK1         DIQWTQSPSSLSASVGDRVTITC         RASQGIRNDLG           -         Germine         DVWTQSPLSLPVTLQQPASISC         RASQGIRNDLG           -         Germine         DVWTQSPLSLPVTPQPASISC         RASQSILASVGNVTL <td>89</td> <td>291</td> <td>A30VK1/JK4</td> <td>DIQMTQSPSSLSASVGDRVTITC</td> <td>RASQGIRNDLG</td> <td>WYQQKPGKAPKRLIY</td>  | 89     | 291         | A30VK1/JK4  | DIQMTQSPSSLSASVGDRVTITC | RASQGIRNDLG      | WYQQKPGKAPKRLIY |
| 2  | 44     | 234         | A30VK1/JK4  | DIQMTQSPSSLSASVGDRVTITC | RASQDIRNDLG      | WYQQKPGKAPKRLIY |
| 25         A30VKL/JK4         DIQWITQSPSILSASVRDRVTITC         RASQGIRNDLG           131         A30VKL/JK4         DIQWITQSPSILSASVGDRVTITC         RASQGIRNDLG           15         A30VKL/JK4         DIQWITQSPSILSASVGDRVTITC         RASQGIRNDLG           16         A30VKL/JK4         DIQWITQSPSILSASVGDRVTITC         RASQGIRNDLG           123         A30VKL/JK4         DIQWITQSPSILSASVGDRVTITC         RASQGIRNDLG           280         A30VKL/JK4         DIQWITQSPSILSASVGDRVTITC         RASQGIRNDLG           281         A30VKL/JK1         DIQWITQSPSILSASVGDRVTITC         RASQGIRNDLG           282         A30VKL/JK1         DIQWITQSPSILSASVGDRVTITC         RASQGIRNDLG           282         A30VKL/JK1         DIQWITQSPSILSASVGDRVTITC         RASQGIRNDLG           282         A30VKL/JK1         DIQWITQSPSILSASVGDRVTITC         RASQGIRNDLG           282         A30VKL/JK1         DIQWITQSPSILSASVGDRVTITC         RASQGIRNDLG           70         A1VXL/JK4         DIQWITQSPLSLLPVTLGQPASISC         RSSQSILRSOGRTYIN           -         Germline         DIVWITQSPLSLLPVTPGEPASISC         RSSQSILASOGRTYN           -         Germline         DIVWITQSPLSLLPVTPGEPASISC         RASQSVSSILAS           -         Germline         EIVWITQSPRATLSVSPGERATLSC   | 4      | 2           | A30VK1/JK4  | DIQMIQSPSSLSASVGDRVTITC | RASQGIRNDLG      | WYQQKPGKAPKRLIY |
| 131   A30VK1/JK4   DIQMTQSPSALSASVGDRVTITC   RASQGIRNDLG     15   A30VK1/JK4   DIQMTQSPSSILSASIGDRVTITC   RASQGIRNDLG     148   A30VK1/JK4   DIQMTQSPSSILSASVGDRVTITC   RASQGIRNDLG     123   A30VK1/JK4   DIQMTQSPSSILSASVGDRVTITC   RASQGIRNDLG     280   Germline   DIQMTQSPSSILSASVGDRVTITC   RASQGIRNDLG     280   A30VK1/JK1   DIQMTQSPSSILSASVGDRVTITC   RASQGIRNDLG     282   A30VK1/JK1   DIQMTQSPSSILSASVGDRVTITC   RASQGIRNDLG     282   A30VK1/JK1   DIQMTQSPSSILSASVGDRVTITC   RASQGIRNDLG     28   A30VK1/JK1   DIQMTQSPSILSASVGDRVTITC   RASQGIRNDLT     4   A10VK2/JK4   DIQMTQSPSILSASVGDRVTITC   RASQGIRNDLT     4   A119VK2/JK1   DIVMTQSPLSILPVTICQPASIISC   RSSQSILASVGGNTLIN     4   Germline   DIVMTQSPLSILPVTICQPASIISC   RSSQSILASVGGNTLIN     4   A119VK2/JK1   DIVMTQSPLSILPVTICQPASIISC   RASQSVSILAS     5   A20VK1/JK1   DIVMTQSPLSILPVTICQPASIISC   RASQSVSILAS     5   A119VK2/JK1   EIVMTQSPLSILPVTICQPASIISC   RASQSVSILAS     5   L2VK3/JK1   EIVMTQSPATILSVSPGRATILSC   RASQSVSSILA     5   L2VK3/JK1   EIVMTQSPATILSVSPATILSC   RASQSVSSILA  | 12     | 25          | A30VK1/JK4  | DIQMTQSPSSLSASVRDRVTITC | RASQGIRNDLG      | WYQQKPGKAPKRLIY |
| 15   A30VKL/JK4   DIQMTQSPSSISASIGDRVTITC   RASGGIRNDLG     148   A30VKL/JK4   DIQMTQSPSSISASVGDRVTITC   RASGGIRNDLG     123   A30VKL/JK4   DIQMTQSPSSISASVGDRVTITC   RASGGIRNDLG     123   A30VKL/JK4   DIQMTQSPSSISASVGDRVTITC   RASGGIRNDLG     280   A30VKL/JK1   DIQMTQSPSSISASVGDRVTITC   RASGGIRNDLG     282   A30VKL/JK1   DIQMTQSPSSISASVGDRVTITC   RASGGIRNDLG     282   A30VKL/JK1   DIQMTQSPSSISASVGDRVTITC   RASGGIRNDLG     284   A30VKL/JK1   DIQMTQSPSSISASVGDRVTITC   RASGGIRNDLG     285   A30VKL/JK1   DIQMTQSPSSISASVGDRVTITC   RASGGIRNDLT     4  | 32     | 131         | A30VK1/JK4  | DIQMIQSPSALSASVGDRVTITC | RASQGIRNDLG      | WYQQKPGKAPKRLIY |
| 95         A30VKL/JK4         DIQWITQSPSSLSASVGDRVTITC         RASQGIRNDLG           148         A30VKL/JK4         DIQWITQSPSSLSASVGDRVTITC         RASQGIRNDLG           -         Germline         DIQWITQSPSSLSASVGDRVTITC         RASQGIRNDLG           280         A30VKL/JK1         DIQWITQSPSSLSASVGDRVTITC         RASQGIRNDLG           282         A30VKL/JK1         DIQWITQSPSSLSASVGDRVTITC         RASQGIRNDLG           -         Germline         DIQWITQSPSSLSASVGDRVTITC         RASQGIRNDLG           -         Germline         DIQWITQSPSSLSASVGDRVTITC         RASQGIRNDLG           -         Germline         DVWMTQSPLSLPVTLGQPASTSC         RSSQSLVYSDGSTTAN           -         Germline         DIVWITQSPLSLPVTPGEPASTSC         RSSQSLLHSNGTNLD           -         Germline         DIVWITQSPLSLPVTPGEPASTSC         RSSQSLLHSNGTNLD           -         Germline         EIVWITQSPLSLPVTPGEPASTSC         RASQSVSSILA           250         LL2VK3/JK1         DIVWITQSPLSLPVTPGEPASTSC         RASQSVSSILA           263         LL2VK3/JK1         EIVWITQSPATLSVSPGERATILSC         RASQSVSSILA           263         LL2VK3/JK1         EIVWITQSPATLSVSPGERATILSC         RASQSVSSILA           263         LL2VK3/JK1         EIVWITQSPATLSVSPGERATILSC  | ∞      | 15          | A30VK1/JK4  | DIQMTQSPSSLSASIGDRVTITC | RASQGIRNDLG      | WYQQKPGKAPKRLIY |
| 148         A3 OVKI / JK4         DIQMTQSPSSLSASVGDRVTITC         RASQGIRNDLG           123         A3 OVKI / JK4         DIQMTQSPSSLSASVGDRVTITC         RASQGIRNDLG           -         Germline         DIQMTQSPSSLSASVGDRVTITC         RASQGIRNDLG           280         A3 OVKI / JK1         DIQMTQSPSSLSASVGDRVTITC         RASQGIRNDLG           282         A3 OVKI / JK1         DIQMTQSPSSLSASVGDRVTITC         RASQGIRNDLG           28         A3 OVKI / JK1         DIQMTQSPSSLSASVGDRVTITC         RASQGIRNDLG           -         Germline         DVVMTQSPLSLPVTLGQPASISC         RSSQSILVYSDGNTYLN           -         Germline         DIVMTQSPLSLPVTPGEPASISC         RSSQSILASNGTNLD           -         Germline         BIVMTQSPLSLPVTPGEPASISC         RSSQSILASNGTNLD           -         Germline         ELVMTQSPLSLPVTPGEPASISC         RASQSVSSNLA           250         L2VK3 / JK1         ELVMTQSPATLSVSPGERATLSC         RASQSVSSNLA           263         L2VK3 / JK1         ELVMTQSPATLSVSPGERATLSC         RASQSVSSNLA           269         L2VK3 / JK1         ELVMTQSPATLSVSPGERATLSC         RASQSVSSNLA  | 24     | 95          | A30VK1/JK4  | DIQMTQSPSSLSASVGDRVTITC | RASQGIRNDLG      | WYQQKPGKAPKRLIY |
| 123   A30VK1/JK4   DIQMTQSPSSLSASVGDRVTITC   RASQCIRNDLG     -   Germline   DIQMTQSPSSLSASVGDRVTITC   RASQCIRNDLG     280   A30VK1/JK1   DIQMTQSPSSLSASVGDRVTITC   RASQCIRNDLG     282   A30VK1/JK1   DIQMTQSPSSLSASVGDRVTITC   RASQCIRNDLG     28   A30VK1/JK1   DIQMTQSPSSLSASVGDRVTITC   RASQCIRNDLG     -   Germline   DIVMTQSPLSLPVTLGQPASISC   RSSQSLVYSDGRTIN     -   Germline   DIVMTQSPLSLPVTPGEPASISC   RSSQSLJHSNGYNYLD     145   A19VK2/JK1   DIVMTQSPLSLPVTPGEPASISC   RSSQSLJHSNGYNYLD     145   A19VK2/JK1   DIVMTQSPLSLPVTPGEPASISC   RASQSVSNLA     250   L2VK3/JK1   EIVMTQSPATLSVSPGERATLSC   RASQSVSNLA     263   L2VK3/JK1   EIVMTQSPATLSVSPGERATLSC   RASQSVSSNLA     269   L2VK3/JK1   EIVMTQSPATLSVSPGERATLSC   RASQSVSSNLA     260   L2VK3/JK1   EIVMTQSPATLSVSPGERATLSC   RASQSVSNLA     260   L2VK3/JK1   EIVMTQSPATLSVSPGERATLSC   RASQSVSNLA     261   L2VK3/JK1   EIVMTQSPATLSVSPGERATLSC   RASQSVSNLA     261   L2VK3/JK1   LAVK3/JK1     262   L2VK3/JK1   LAVK3/JK1 | 40     | 148         | A30VK1/JK4  | DIQMTQSPSSLSASVGDRVTITC | RASQGIRNDLG      | WYQQKPGKAPKRLIS |
| -         Germline         DIQWTQSPSSILSASVGDRVTTTC         RASQGTRNDLG           280         A3 OVKL/JK1         DIQWTQSPSSILSASVGDRVTTTC         RASQGTRNDLG           282         A3 OVKL/JK1         DIQWTQSPSSILSASVGDRVTTTC         RASQGTRNDLG           -         Germline         DVWTQSPLSLRAVTLGQPASISC         RSSQSILVYSDGNTTM           -         Germline         DVWTQSPLSLPVTLGQPASISC         RSSQSILVSDGNTTM           -         Germline         DIVWTQSPLSLPVTPGEPASISC         RSSQSILLHSNGYNYLD           -         Germline         DIVWTQSPLSLPVTPGEPASISC         RSSQSILLHSNGYNYLD           -         Germline         DIVWTQSPLSLPVTPGEPASISC         RSSQSILLHSNGYNYLD           -         Germline         EIVWTQSPATLLSVSPGERATLSC         RASQSVSNILA           250         L2VK3/JK1         EIVWTQSPATLLSVSPGERATLSC         RASQSVSNILA           263         L2VK3/JK1         EIVWTQSPATLLSVSPGERATLSC         RASQSVSSNILA           263         L2VK3/JK1         EIVWTQSPATLLSVSPGERATLSC         RASQSVSSNILA           269         L2VK3/JK1         EIVWTQSPATLLSVSPGERATLSC         RASQSVSSNILA  | 28     | 123         | A30VK1/JK4  | DIQMTQSPSSLSASVGDRVTITC | RASQGIRNDLG      | WYQQKPGKAPKRLIY |
| 280         A30VK1/JK1         DIQWTQSPSSLSASVGDRVTITC         RASQGIRNDLG           282         A30VK1/JK1         DIQWTQSPSSLSASVGDRVTITC         RASQGIRNDLG           28         A30VK1/JK1         DIQWTQSPSSLSASVGDRVTITC         RASQGIRNDLT           -         Germline         DVVWTQSPLSLPVTLGQPASISC         RSSQSLVYSDGSTTLN           -         Germline         DIVWTQSPLSLPVTLGQPASISC         RSSQSLVYSDGSTTLN           145         A19VK2/JK1         DIVWTQSPLSLPVTPGEPASISC         RSSQSLLHSNGYNYLD           -         Germline         EIVWTQSPLSLPVTPGEPASISC         RSSQSLLHSNGYNYLD           -         Germline         EIVWTQSPLSLPVTPGEPASISC         RSSQSLLHSNGYNYLD           -         Germline         EIVWTQSPATLSVSPGERATLSC         RASQSVSSNLA           250         L2VK3/JK1         EIVWTQSPATLSVSPGERATLSC         RASQSVSSNLA           263         L2VK3/JK1         EIVWTQSPATLSVSPGERATLSC         RASQSVSSNLA           269         L2VK3/JK1         EIVWTQSPATLSVSPGERATLSC         RASQSVSSNLA           269         L2VK3/JK1         EIVWTQSPATLSVSPGERATLSC         RASQSVSSNLA   | 274    | ı           | Germline    | DIQMTQSPSSLSASVGDRVTITC | RASQGIRNDLG      | WYQQKPGKAPKRLIY |
| 282         A30VK1/JK1         DIQWTQSPSSLSASVGDRVTTTC         RASQGIRNDLG           28         A30VK1/JK1         DIQWTQSPSSLSASVGDRVTTTC         RASQGIRNDLT           -         Germline         DVVMTQSPLSLPVTLGQPASISC         RSSQSLVYSDGNTYLN           -         Germline         DIVMTQSPLSLPVTLGQPASISC         RSSQSLLHSNGYNYLD           -         Germline         DIVMTQSPLSLPVTPGEPASISC         RSSQSLLHSNGYNYLD           -         Germline         DIVMTQSPLSLPVTPGEPASISC         RSSQSLLHSNGYNYLD           -         Germline         EIVWTQSPLSLPVTPGEPASISC         RSSQSLLHSNGYNYLD           -         Germline         EIVWTQSPATLSVSPGERATLSC         RASQSVSSNLA           250         LL2VK3/JK1         EIVWTQSPATLSVSPGERATLSC         RASQSVSSNLA           263         LL2VK3/JK1         EIVWTQSPATLSVSPGERATLSC         RASQSVSSNLA           269         LL2VK3/JK1         EIVWTQSPATLSVSPGERATLSC         RASQSVSSNLA   | 09     | 280         | A3 OVK1/JK1 | DIQMTQSPSSLSASVGDRVTITC | RASQGIRNDLG      | WYQQKPGKAPKRLIY |
| 28         A30VK1/JK1         DIQWITQSPSILSASVGDRVTITC         RASQSIRNDLT           -         Germline         DVWMTQSPLSLPVTLGQPASISC         RSSQSILVYSDGNTYLN           70         A1VK2/JK4         DVVMTQSPLSLPVTLGQPASISC         RSSQSILVYSDGSTYLN           -         Germline         DIVWTQSPLSLPVTPGEPASISC         RSSQSILHSNGYNYLD           -         Germline         DIVWTQSPLSLPVTPGEPASISC         RSSQSILHSNGYNYLD           -         Germline         EIVWTQSPATLSVSPGERATLSC         RASQSVSSNLA           250         L2VK3/JK1         EIVWTQSPATLSVSPGERATLSC         RASQSVSSNLA           263         L2VK3/JK1         EIVWTQSPATLSVSPGERATLSC         RASQSVSSNLA           269         L2VK3/JK1         EIVWTQSPATLSVSPGERATLSC         RASQSVSSNLA  | 64     | 282         | A30VK1/JK1  | DIQMTQSPSSLSASVGDRVTITC | RASQGIRNDLG      | WYQQKPGKAPKRLIY |
| -         Germline         DVVMTQSPLSLPVTLGQPASISC         RSSQSLVYSDGNTYLN           70         A1VK2/JK4         DVVMTQSPLSLPVTLGQPASISC         RSSQSLVYSDGSTYLN           -         Germline         DIVMTQSPLSLPVTPGEPASISC         RSSQSLLHSNGYNYLD           -         Germline         DIVMTQSPLSLPVTPGEPASISC         RSSQSLLHSNGYNYLD           -         Germline         EIVMTQSPATLSVSPGERATLSC         RASQSVSSNLA           250         L2VK3/JK1         EIVMTQSPATLSVSPGERATLSC         RASQSVSSNLA           263         L2VK3/JK1         EIVMTQSPATLSVSPGERATLSC         RASQSVSSNLA           269         L2VK3/JK1         EIVMTQSPATLSVSPGERATLSC         RASQSVSSNLA   | 16     | 28          | A30VK1/JK1  | DIQMTQSPSSLSASVGDRVTITC | RASQGIRNDLT      | WYQQKPGKAPKRLIY |
| 70         A1VK2/JK4         DVVMTQSPLSLPVTLGQPASISC         RSSQSLVYSDGSTYLN           -         Germline         DIVMTQSPLSLPVTPGEPASISC         RSSQSLLHSNGYNYLD           -         Germline         DIVMTQSPLSLPVTPGEPASISC         RSSQSLLHSNGYNYLD           -         Germline         EIVMTQSPATLSVSPGERATLSC         RASQSVSSNLA           250         LL2VK3/JK1         EIVMTQSPATLSVSPGERATLSC         RASQSVSSNLA           263         LL2VK3/JK1         EIVMTQSPATLSVSPGERATLSC         RASQSVSSNLA           269         LL2VK3/JK1         EIVMTQSPATLSVSPGERATLSC         RASQSVSSNLA  | 275    | 1           | Germline    | DVVMTQSPLSLPVTLGQPASISC | RSSQSLVYSDGNTYLN | WFQQRPGQSPRRLIY |
| -         Germline         DIVMTQSPLSLPVTPGEPASISC         RSSQSLLHSNGYNYLD           145         A19VK2/JK1         DIVMTQSPLSLPVTPGEPASISC         RSSQSLLHSNGYNYLD           -         Germline         EIVMTQSPATLSVSPGERATLSC         RASQSVSSNLA           250         LL2VK3/JK1         EIVMTQSPATLSVSPGERATLSC         RASQSVSSNLA           263         LL2VK3/JK1         EIVMTQSPATLSVSPGERATLSC         RASQSVSSNLA           269         LL2VK3/JK1         EIVMTQSPATLSVSPGERATLSC         RASQSVSSNLA  | 20     | 70          | A1VK2/JK4   | DVVMTQSPLSLPVTLGQPASISC | RSSQSLVYSDGSTYLN | WFQQRPGQSPRRLIY |
| 145         A19VKZ/JK1         DIVWTQSPLSLPVTPGEPASISC         RSSQSLLHSNGYNYLD           -         Germline         EIVMTQSPATLSVSPGERATLSC         RASQSVSSNLA           250         L2VK3/JK1         EIVMTQSPATLSVSPGERATLSC         RASQSVTSNLA           263         L2VK3/JK1         EIVMTQSPATLSVSPGERATLSC         RASQSVSSNLA           269         L2VK3/JK1         EIVMTQSPATLSVSPGERATLSC         RASQSVSSNLA   | 276    | ı           | Germline    | DIVMTQSPLSLPVTPGEPASISC | RSSQSLLHSNGYNYLD | WYLQKPGQSPQLLIY |
| -         Germline         EIVMTQSPATLSVSPGERATLSC         RASQSVSSNI.A           250         L2VK3/JK1         EIVMTQSPATLSVSPGERATLSC         RASQSVTSNI.A           263         L2VK3/JK1         EIVMTQSPATLSVSPGERATLSC         RASQSVSSNI.A           269         L2VK3/JK1         EIVMTQSPATLSVSPGERATLSC         RASQSVSSNI.A   | 36     | 145         | A19VK2/JK1  | DIVMTQSPLSLPVTPGEPASISC | RSSOSLLHSNGYNYLD | WYLQKPGQSPQLLIF |
| 250 L2VK3/JK1 EIVMTQSPATLSVSPGERATLSC RASQSVTSNLA EIVMTQSPATLSVSPGERATLSC RASQSVSSNLA EIVMTQSPATLSVSPGERATLSC RASQSVSSNLA EIVMTQSPATLSVSPGERATLSC RASQSVSSNLA  | 277    | 1           | Germline    | EIVMTQSPATLSVSPGERATLSC | RASQSVSSNLA      | WYQQKPGQAPRLLIY |
| 263 L2VK3/JK1 EIVMTQSPATLSVSPGERATLSC RASQSVSSNLA EIVMTQSPATLSVSPGERATLSC RASQSVSSNLA  | 48     | 250         | L2VK3/JK1   | EIVMTQSPATLSVSPGERATLSC | RASQSVTSNLA      | WYQQKPGQAPRLLIH |
| 269 L2VK3/JK1 EIVMTQSPATLSVSPGERATLSC RASQSVSSNLA  | 52     | 263         | L2VK3/JK1   | EIVMTQSPATLSVSPGERATLSC | RASQSVSSNLA      | WYQQKPGQAPRLLIH |
|  | 99     | 269         | L2VK3/JK1   | EIVMTQSPATLSVSPGERATLSC | RASQSVSSNLA      | WYQQKPGQAPRLLIH |

| PARA 1.         STRGELE Ce11         CDR2         PR3         CDR3         CDR3         FR4           27.3         -         AASSLQS         GVPSRPSGSSGGTBETLITISSLQPEDPATYC         LQHKSYPLIT         PGGGTKVBLK           7.2         2.99         AASSLLQS         GVPSRPSGSGGGTBETLITISSLQPEDPATYC         LQHKSYPLIT         PGGGTKVBLK           6.6         2.91         AASSLLQS         GVPSRPSGSGGGTBETLITISSLQPEDPATYC         LQHKSYPLIT         PGGGTKVBLK           4.4         2.94         AASSLLQS         GVPSRPSGSGGGTBETLITISSLQPEDPATYC         LQHKSYPLIT         PGGGTKVBLK           4.4         2.24         AASSLLQS         GVPSRPSGSGGGTBETLITISSLQPEDPATYC         LQHKSYPLT         PGGGTKVBLK           1.2         AASSLLQS         GVPSRPSGSGGGTBETLITISSLQPEDPATYC         LQHKSYPLT         PGGGTKVBLK           2.4         1.5         AASSLLQS         GVPSRPSGSGGGTBETLITISSLQPEDPATYC         LQHKSYPLT         PGGGTKVBLK           2.4         1.5         AASSLLQS         GVPSRPSGSGGSGTBETLITISSLQPEDPATYC         LQHKSYPLT         PGGGTKVBLK           2.4         1.5         AASSLLQS         GVPSRPSGSGGSGTBETLITISSLQPEDPATYC         LQHKSYPLT         PGGGTKVBLK           2.4         1.48         AASSLLQS         GVPSRPSGSGGSGTBETLITISSLQPEDPATYC         LQHKSY  | 4   |             |         |                                  |                |            |
|--|-----|-------------|---------|----------------------------------|----------------|------------|
| -         AASSLQS         GVPSRPSGSGSTEFTLITISSLQPEDFATIYC         LQHNSYPLT           299         AASTLQS         GVPSRPSGSGSGTEFTLITISSLQPEDFATIYC         LQHNSYPLT           313         AASSLLQS         GVPSRPSGSGSGTEFTLITISSLQPEDFATIYC         LQHNSYPLT           294         AASSLQS         GVPSRPSGSGSGTEFTLITISSLQPEDFATIYC         LQHNSYPLT           25         AASSLQS         GVPSRPSGSGSGTEFTLITISSLQPEDFATIYC         LQHNSYPLT           25         AASSLQS         GVPSRPSGSGSGTEFTLITISSLQPEDFATIYC         LQHNSYPLT           15         AASSLQS         GVPSRPSGSGSGTEFTLITISSLQPEDFATIYC         LQHNSYPLT           15         AASSLQS         GVPSRPSGSGSGTEFTLITISSLQPEDFATIYC         LQHNSYPLT           16         AASSLQS         GVPSRPSGSGSGTEFTLITISSLQPEDFATIYC         LQHNSYPLT           17         AASSLQS         GVPSRPSGSGSGTEFTLITISSLQPEDFATIYC         LQHNSYPLT           18         AASSLQS         GVPSRPSGSGSGTEFTLITISSLQPEDFATIYC         LQHNSYPLT           10         AASSLQS         GVPSRPSGSGSGTEFTLITISSLQPEDFATIYC         LQHNSYPLT           280         AASSLQS         GVPSRPSGSGSGTEFTLITISSLQPEDFATIYC         LQHNSYPLT           380         AASSLQS         GVPSRPSGSGSGTEFTLITISSLQPEDFATIYC         LQHNSYPLT           480         AASSLQS </th <th>NO:</th> <th>Single Cell</th> <th>CDR2</th> <th>FR3</th> <th>CDR3</th> <th>FR4</th>                                     | NO: | Single Cell | CDR2    | FR3                              | CDR3           | FR4        |
| 299         AASTILOS         GUPERPEGGSGTEFIFTISSLOPEDFASYYC         LOHGSYPLT           313         AASSILES         GUPERPEGGSGSPEFILITISSLOPEDFATYYC         LOHGCYPLT           234         AASSILOS         GVPERPEGGSGSPEFILITISSLOPEDFATYYC         LOHGCYPLT           25         AASSILOS         GVPERPEGGSGSPEFILITISSLOPEDFATYYC         LOHGNYPLT           25         AASSILOS         GVPERPEGGSGSTEFILITISSLOPEDFATYYC         LOHGNYPLT           25         AASSILOS         GVPERPEGGSGSTEFILITISSLOPEDFATYYC         LOHGNYPLT           151         AASSILOS         GVPERPEGGSGTEFILITISSLOPEDFATYYC         LOHGNYPLT           152         AASSILOS         GVPERPEGGSGTEFILITISSLOPEDFATYYC         LOHGNYPLT           164         AASSILOS         GVPERPEGGSGTEFILITISSLOPEDFATYYC         LOHGNYPLT           123         AASSILOS         GVPERPEGGSGTEFILITISSLOPEDFATYYC         LOHGNYPLT           280         AASSILOS         GVPERPEGGSGTEFILITISSLOPEDFATYYC         LOHGNYPTT           280         AASSILOS         GVPERPEGGSGTEFILITISSLOPEDFATYYC         LOHGNYPTT           280         AASSILOS         GVPERPEGGSGTEFILITISSLOPEDFATYYC         LOHGNYPTT           280         AASSILOS         GVPERPEGGSGSTEFILITISSLOPEDFATYYC         LOHGNSTPWT           - <td< td=""><td>273</td><td>ı</td><td>AASSLQS</td><td>GVPSRFSGSGSGTEFTLTISSLQPEDFATYYC</td><td>LQHNSYPLT</td><td>FGGCTKVEIK</td></td<> | 273 | ı           | AASSLQS | GVPSRFSGSGSGTEFTLTISSLQPEDFATYYC | LQHNSYPLT      | FGGCTKVEIK |
| 313         AASSILES         GUVERPEGGGSGTBETILITISSILQPEDFATYYC         LQHKXYPLT           291         AASSILQS         GVPSRPSGGGSGTBETILITISSILQPEDFATYYC         LQHKXYPLT           234         AASSILQS         GVPSRPSGGSGTBETILITISSILQPEDFATYYC         LQHKXYPLT           25         AASSILQS         GVPSRPSGSGGTBETILITISSILQPEDFATYYC         LQHKXYPLT           131         AASSILQS         GVPSRPSGSGGTBETILITISSILQPEDFATYYC         LQHKXYPLT           15         AASSILQS         GVPSRPSGSGGTBETILITISSILQPEDFATYYC         LQHKXYPLT           16         AASSILQS         GVPSRPSGSGGTBETILITISSILQPEDFATYYC         LQHKXYPLT           17         AASSILQS         GVPSRPSGSGGTBETILITISSILQPEDFATYYC         LQHKXYPLT           18         AASSILQS         GVPSRPSGSGGTBETILITISSILQPEDFATYYC         LQHKXYPLT           280         AASSILQS         GVPSRPSGSGGTBETILITISSILQPEDFATYYC         LQHKXYPMT           280         AASSILQS         GVPSRPSGSGGTBETILITISSILQPEDFATYYC         LQHKXYPMT           28         AASSILQS         GVPSRPSGSGGTBETILITISSILQPEDFATYYC         LQHKNYPMT           38         AASSILQS         GVPDRPSGSGSGTBETILITISSILQPEDFATYYC         LQHKNYPMT           4         LGSNRAS         GVPDRPSGSGSGTBETILITISSILQPEDFATYC         LQHKNYPMT   | 72  | 299         | AASTLQS | GVPSRFSGSGSGTEFIFTISSLQPEDFASYYC | LQHKSYPLT      | FGGTKVEIK  |
| 291         AASSLQS         GVPSRPGGGGGTEFTLTISSIQPEDFATYYC         LQHCCYPLT           234         AASSLQS         GVPSRPGGGGGGTEFTLTISSIQPEDFATYYC         LQHNXPPLT           25         AASSLQS         GVPSRPGGGGGTEFTLTISSIQPEDFATYYC         LQHNXPPLT           151         AASSLQS         GVPSRPGGGGGTEFTLTISSIQPEDFATYYC         LQHNXPPLT           15         AASSLQS         GVPSRPGGGGGTEFTLTISSIQPEDFATYYC         LQHNSYPLT           95         AASSLQS         GVPSRPGGGGGTEFTLTISSIQPEDFATYYC         LQHNSYPLT           148         AASSLQS         GVPSRPGGGGGTEFTLTISSIQPEDFATYYC         LQHNSYPLT           123         AASSLQS         GVPSRPSGGGGTEFTLTISSIQPEDFATYYC         LQHNSYPLT           260         AASSLQS         GVPSRPSGGGGTEFTLTISSIQPEDFATYYC         LQHNSYPLT           270         AASSLQS         GVPSRPSGGGGTEFTLTISSIQPEDFATYYC         LQHNSYPRT           280         AASSLQS         GVPSRPSGGGGTEFTLTISSIQPEDFATYYC         LQHNSYPRT           281         AASSLQS         GVPSRPSGGGGTEFTLTISSIQPEDFATYYC         LQHNSYPRT           282         AASSLQS         GVPSRPSGGGGTFFTLTISSIQPEDFATYYC         LQHNSYPRT           383         AASSLQS         GVPSRPSGGGGTFFTLTISSIQPEDFATYYC         LQHNSPT           484         AASSLAGS         GVPDRP  | 80  | 313         | AASSLES | GVPSRFSGSGSGPEFTLTISSLQPEDFATYYC | LOHNSYPLT      | FGGTKVEIQ  |
| 234         AASSLQS         GVPSRPSGSGSGPBFTLTISSLQPEDFATYYC         LQHNSYPLT           25         AASSLQS         GVPSRPSGSGSGTBFTLTISSLQPEDFATYYC         LQHNSYPLT           151         AASSLQS         GVPSRPSGSGSGTBFTLTISSLQPEDFATYYC         LQHNSYPLT           15         AASSLQS         GVPSRPSGSGSGTBFTLTISSLQPEDFATYYC         LQHNSYPLT           16         AASSLQS         GVPSRPSGSGSGTBFTLTISSLQPEDFATYYC         LQHNSYPLT           173         AASSLQS         GVPSRPSGSGSGTBFTLTISSLQPEDFATYYC         LQHNSYPLT           1848         AASSLQS         GVPSRPSGSGSGTBFTLTISSLQPEDFATYYC         LQHNSYPLT           183         AASSLQS         GVPSRPSGSGSGTBFTLTISSLQPEDFATYYC         LQHNSYPLT           280         AASSLQS         GVPSRPSGSGSGTBFTLTISSLQPEDFATYYC         LQHNSYPLT           281         AASSLQS         GVPSRPSGSGSGTBFTLTISSLQPEDFATYYC         LQHNSYPRT           282         AASSLQS         GVPSRPSGSGSGTBFTLTISSLQPEDFATYYC         LQHNSYPRT           280         AASSLQS         GVPSRPSGSGSGTBFTLTISSLQPEDFATYYC         LQHNSYPRT           281         AASSLQS         GVPSRPSGSGSGTBFTLTISSLQPEDFATYC         LQHNSYPRT           38         AASSLQS         GVPSRPSGSGSGTBFTLTISSLQPEDFATYC         LQHNSYPRT           40         KWNNMDS  | 68  | 291         | AASSLQS | GVPSRFSGSGSGTEFTLTISSLQPEDFATYYC | LQHCCYPLT      | FGGTKVEIK  |
| 2         AASSLQS         GVPSRPSGSGSGTBFTLTISSLQPEDFATYYC         LQHNNYPLT           25         AASSLQS         GVPSRPSGSGSGTBFTLTISSLQPEDFATYYC         LQHNNYPLT           131         AASSLQS         GVPSRPSGSGSGTBFTLTISSLQPEDFATYYC         LQHNSYPLT           15         AASSLQS         GVPSRPSGSGSGTBFTLTISSLQPEDFATYYC         LQHNSYPLT           148         AASSLQS         GVPSRPSGSGSGTBFTLTISSLQPEDFATYYC         LQHNSYPLT           -         AASSLQS         GVPSRPSGSGSGTBFTLTISSLQPEDFATYYC         LQHNSYPLT           -         AASSLQS         GVPSRPSGSGSGTBFTLTISSLQPEDFATYYC         LQHNSYPLT           280         AASSLQS         GVPSRPSGSGSGTBFTLTISSLQPEDFATYYC         LQHNSYPRT           280         AASSLQS         GVPSRPSGSGSGTBFTLTISSLQPEDFATYYC         LQHNSYPRT           280         AASSLQS         GVPSRPSGSGSGTBFTLTISSLQPEDFATYYC         LQHNSYPRT           280         AASSLQS         GVPSRPSGSGSGTBFTLTISSLQPEDFATYYC         LQHNSYPRT           281         AASSLQS         GVPSRPSGSGSGTBFTLTISSLQPEDFATYYC         LQHNSYPRT           38         AASSLAS         GVPDRPSGSGSGTBFTLTISSLQPEDFATYC         LQHNSYPRT           4         LGSYRAS         GVPDRPSGSGSGTBFTLTISSLQPEDFATYC         QQNINWPT           5         GASTRAT         GLPAR  | 44  | 234         | AASSLQS | GVPSRFSGSGSGPEFTLTISSLQPEDFATYYC | LQHNSYPLT      | FGGTKVEIK  |
| 25         AASSLQS         GVPSRPSGSGGTEFTLITISSLQPEDFATYYC         LQHKSYPLT           131         AASSLQS         GVPSRPSGSGSGTEFTLITISSLQPEDFATYYC         LQHKSYPLT           15         AASSLQS         GVPSRPSGSGSGTEFTLITISSLQPEDFATYYC         LQHKSYPLT           148         AASSLQS         GVPSRPSGSGSGTEFTLITISSLQPEDFATYYC         LQHKSYPLT           123         AASSLQS         GVPSRPSGSGSGTEFTLITISSLQPEDFATYYC         LQHKSYPLT           280         AASSLQS         GVPSRPSGSGSGTEFTLITISSLQPEDFATYYC         LQHKSYPLT           282         AASSLQS         GVPSRPSGSGSGTEFTLITISSLQPEDFATYYC         LQHKSYPRT           282         AASSLQS         GVPSRPSGSGSGTEFTLITISSLQPEDFATYYC         LQHKSYPRT           282         AASSLQS         GVPSRPSGSGSGTEFTLITISSLQPEDFATYYC         LQHKSYPRT           4         KWWINDS         GVPSRPSGSGSGTEFTLITISSLQPEDFATYYC         LQHKSYPRT           5         KWWINDS         GVPDRPSGSGSGTEFTLAKISRVEADBOVGVYYC         MQALQTWT           6         KWWINDS         GVPDRPSGSGSGTEFTLAKISRVEADBOVGVYYC         MQALQTWT           7         KWWINDS         GVPDRPSGSGSGTEFTLAKISRVEADBOVGVYYC         QQYNVWT           8         GASTRAT         GLPARPSGSGSGTEFTLITISSLQSEDFAVYCC         QQYNVWWT           16         GASTRAT  | 4   | 2           | AASSLQS | GVPSRFSGSGSGTEFTLTISSLQPEDFATYYC | LOHINIYPLT     | FGGTKVEIK  |
| 131         AASSLQS         GVPSRFSGSGGTEFTLITISSLQPEDFATTYC         LQHKSYPLT           15         AASSLQS         GVPSRFSGSGGGTEFTLITISSLQPEDFATTYC         LQHKSYPLT           148         AASSLQS         GVPSRFSGSGGGTEFTLITISSLQPEDFATTYC         LQHKSYPLT           123         AASSLQS         GVPSRFSGSGGGTEFTLITISSLQPEDFATTYC         LQHKSYPLT           280         AASSLQS         GVPSRFSGSGGGTEFTLITISSLQPEDFATTYC         LQHKSYPLT           281         AASSLQS         GVPSRFSGSGGGTEFTLITISSLQPEDFATTYC         LQHKSYPMT           282         AASSLQS         GVPSRFSGSGGGTEFTLITISSLQPEDFATTYC         LQHKSYPMT           282         AASSLQS         GVPSRFSGSGGGTEFTLITISSLQPEDFATTYC         LQHKSYPMT           284         AASSLQS         GVPSRFSGSGGGTEFTLITISSLQPEDFATTYC         LQHKSYPMT           285         AASSLQS         GVPSRFSGSGGGTEFTLITISSLQPEDFATTYC         LQHKSYPMT           70         KVMMMDS         GVPDRFSGSGGGTEFTLITISSLQPEDFATTYC         MQHKSTMT           145         LGSKRAS         GVPDRFSGSGGGTEFTLITISSLQPEDFATTYC         QQNNWWT           250         GASTRAT         GLPPARFSGSGGGTEFTLITISSLQSEDFAVYYC         QQNNWWT           263         GASTRAT         GLPPARFSGSGGGTEFTLITISSLQSEDFAVYYC         QQNNWWT           263         GASTRAT<   | 12  | 25          | AASSLQS | GVPSRFSGSGSGTEFTLTISSLQPEDFATYYC | LQHINSYPLT     | FGGTKVEIK  |
| 15         AASSLQS         GVPSRFSGSGSCPETITITISSLQPEDFATYYC         LQHNSYPLT           95         AASSLQS         GVPSRFSGSGSGTEFTLTISSLQPEDFATYYC         LQHNSYPLT           148         AASSLQS         GVPSRFSGSGSGTEFTLTISSLQPEDFATYYC         LQHNSYPLT           123         AASSLQS         GVPSRFSGSGSGTEFTLTISSLQPEDFATYYC         LQHNSYPLT           280         AASSLQS         GVPSRFSGSGSGTEFTLTISSLQPEDFATYYC         LQHNSYPRT           282         AASSLAS         GVPSRFSGSGSGTEFTLTISSLQPEDFATYYC         LQHNSYPRT           282         AASSLAS         GVPSRFSGSGSGTEFTLTISSLQPEDFATYYC         LQHNSYPRT           282         AASSLAS         GVPSRFSGSGSGTEFTLTISSLQPEDFATYYC         LQHNSYPRT           283         AASSLAS         GVPSRFSGSGSGTEFTLTISSLQPEDFATYYC         LQHNSYPRT           70         KVWNWDS         GVPBRFSGSGSGTDFTLKISRVBAEDVGVYYC         MQGTHWP##LT           70         KVWNWDS         GVPDRFSGSGSGTDFTLKISRVBAEDVGVYYC         MQALQIWI           145         LGSYRAS         GVPDRFSGSGSGTDFTLKISRVBAEDVGVYYC         QQYNNWWT           250         GASTRAT         GLPARFSGSGSGTEFTLTISSLQSEDFAVYYC         QQNNWWT           263         GASTRAT         GLPARFSGSGSGTEFTLTISSLQSEDFAVYYC         QQNNWWT           269         GASTRAT   | 32  | 131         | AASSLQS | GVPSRFSGSGSGTEFTLTISSLQPEDFATYYC | LQHKSYPLT      | FGGTKVEIK  |
| 95         AASSIQS         GVPSRFSGSGSTEFTLITVSSLQPEDFATYYC         LQHHSYPLIT           148         AASSIQG         GVPSRFSGSGSTEFTLITISSLQPEDFATYYC         LQHNSYPLIT           123         AASSIQS         GVPSRFSGSGSTEFTLITISSLQPEDFATYYC         LQHNSYPLIT           280         AASSIQS         GVPSRFSGSGSTEFTLITISSLQPEDFATYYC         LQHNSYPRT           282         AASSILAS         GVPSRFSGSGSTEFTLITISSLQPEDFATYYC         LQHNSYPRT           28         AASSILAS         GVPSRFSGSGSTEFTLITISSLQPEDFATYYC         LQHNSYPRT           28         AASSILAS         GVPSRFSGSGSTEFTLITISSLQPEDFATYC         LQHNSYPRT           28         AASSILQS         GVPRFSGSGSGTEFTLITISSLQPEDFATYC         LQHNSYPRT           70         KVWNWDS         GVPDRFSGSGSGTEFTLITISSLQPEDFATYC         LQHNSYPRT           70         KVWNWDS         GVPDRFSGSGSGTDFTLKISRVEAEDVGVYYC         MQSTHWP##LIT           145         LGSNRAS         GVPDRFSGSGSGTDFTLKISRVEAEDVGVYYC         QQYNNWWT           250         GASTRAT         GLPARFSGSGSGTEFTLITISSLQSEDFAVYYC         QQYNNWWT           263         GASIRAT         GLPARFSGSGSGTEFTLITISSLQSEDFAVYYC         QQYNNWWT           269         GASIRAT         GLPARFSGSGSGTEFTLITISSLQSEDFAVYYC         QQYNNWWT   | 80  | 15          | AASSLQS | GVPSRFSGSGSGPEFTLTISSLQPEDFATYYC | LQHINSYPLT     | FGGCTKVEIK |
| 148         AASSLQG         GVPSRFSGSGSTEFTLITISSLQPEDFATYYC         LQHNSYPLT           -         AASSLQS         GVPSRFSGSGSTEFTLITISSLQPEDFATYYC         LQHNSYPRT           -         AASSLQS         GVPSRFSGSGSTEFTLITISSLQPEDFATYYC         LQHNSYPRT           280         AASSLQS         GVPSRFSGSGSTEFTLITISSLQPEDFATYYC         LQHNSYPRT           282         AASSLQS         GVPSRFSGSGSTEFTLITISSLQPEDFATYYC         LQHNSYPRT           -         RVWNWDS         GVPSRFSGGSGTEFTLITISSLQPEDFATYYC         LQHNSYPWT           -         KVWNWDS         GVPDRFSGGSGTDFTLKISSLQPEDFATYYC         MQSTHWP##LT           -         LGSNRAS         GVPDRFSGGSGTDFTLKISRVEAEDVGVYYC         MQASHWPRETT           -         LGSNRAS         GVPDRFSGGSGTDFTLKISRVEAEDVGVYYC         MQALQTWT           -         GAPDRFSGGSGTDFTLKISRVEAEDVGVYYC         MQALQTWT           -         GASTRAT         GIPPARFSGGSGTEFTLTISSLQSEDFAVYYC         QXNNYWWT           263         GASIRAT         GLPPARFSGGSGTEFTLTISSLQSEDFAVYC         QXNNYWWT           269         GASIRAT         GLPPARFSGSGGTEFTLTISSLQSEDFAVYC         QXNNYWT   | 24  | 95          | AASSLQS | GVPSRFSGSGSGTEFTLTVSSLQPEDFATYYC | LQHHSYPLT      | FGGGTKVQIN |
| 123   AASSLQS   GVPSRFSGGGGTEFTLITISSLQPEDFATYYC   LQHNNYPLT   | 40  | 148         | AASSLQG | GVPSRFSGSGSGTEFTLTISSLQPEDFATYYC | LQHNSYPLT      | FGGTKVEIK  |
| -         AASSLQS         GVPSRFSGSGSGTEFTLTISSLQPEDFATYYC         LQHNSYPRT           280         AASSLAS         GVPSRFSGSGSGTEFTLTISSLQPEDFATYYC         LQHNSYPRT           282         AASSLAS         GVPSRFSGSGSGTEFTLTISSLQPEDFATYYC         LQHNSYPRT           28         AASSLAS         GVPSRFSGSGSGTEFTLTISSLQPEDFATYYC         LQHNSYPWT           -         KVWNWDS         GVPDRFSGSGSGTEFTLTISSLQPEDFATYYC         LQHNSFPWT           -         LGSNRAS         GVPDRFSGSGSGTDFTLKISRVEAEDVGVYYC         MQGSHWPREFT           -         LGSNRAS         GVPDRFSGSGSGTDFTLKISRVEAEDVGVYYC         MQALQTWT           145         LGSNRAS         GVPDRFSGSGSGTDFTLKISRVEAEDVGVYYC         MQALQTWT           -         GASTRAT         GIPPARFSGSGSGTEFTLTISSLQSEDFAVYYC         QQYNNWWT           250         GASIRAT         GLPPARFSGSGSGTEFTLTISSLQSEDFAVYYC         QQYNNYWT           263         GASIRAT         GLPPARFSGSGSGTEFTLTISSLQSEDFAVYYC         QQXNNYWT           269         GASIRAT         GLPPARFSGSGSGTEFTLTISSLQSEDFAVYYC         QQXNNYWT   | 28  | 123         | AASSLQS | GVPSRFSGSGSGTEFTLTISSLQPEDFATYYC | LQHNNYPLT      | FGGCTKVEIK |
| 280         AASSLQS         GVPSRFSGSGSGTEFTLTTSSLQPEDFATYYC         LQHNSYPRT           282         AASSLHS         GVPSRFSGSGSGTEFTLTTSSLQPEDFATYYC         LQHNSYPWT           28         AASSLQS         GVPSRFSGSGSGTEFTLTTSSLQPEDFATYYC         LQHNSFPWT           -         KVWNWDS         GVPDRFSGSGSGTDFTLKISRVEAEDVGVYYC         MQGTHWP#LTT           -         LGSNRAS         GVPDRFSGSGSGTDFTLKISRVEAEDVGVYYC         MQALQTWT           145         LGSVRAS         GVPDRFSGSGSGTDFTLKISRVEAEDVGVYYC         MQALQTWT           -         GASTRAT         GIPARFSGSGSGTEFTLTTISSLQSEDFAVYYC         QQYNNWWT           250         GASIRAT         GLPARFSGSGSGTEFTLTTISSLQSEDFAVYYC         QQYNNWWT           263         GASIRAT         GLPARFSGSGSGTEFTLTTISSLQSEDFAVYYC         QQYNNWWT           269         GASIRAT         GLPARFSGSGSGTEFTLTTISSLQSEDFAVYYC         QQYNYWWT   | 274 | ı           | AASSLQS | GVPSRFSGSGSGTEFTLTISSLQPEDFATYYC | LOHNSYPWT      | FGQGTKVEIK |
| 282         PARSILHS         GVPSRFSGSGSGTEFTLTISSLQPEDFATTYC         LQHNSYPWT           28         AASSILQS         GVPSRFSGSGSGTEFTLTISSLQPEDFATTYC         LQHNSFPWT           -         KVWNWDS         GVPDRFSGSGSGTDFTLKISRVEAEDVGVYYC         MQGTHWP##LT           -         IGSNRAS         GVPDRFSGSGSGTDFTLKISRVEAEDVGVYYC         MQALQTWT           -         IGSNRAS         GVPDRFSGSGSGTDFTLKISRVEAEDVGVYYC         MQALQTWT           -         GASTRAT         GIPARFSGSGSGTDFTLKISRVEAEDVGVYYC         MQALQTWT           -         GASTRAT         GIPARFSGSGSGTDFTLKISSLQSEDFAVYYC         QQYNYWWT           250         GASIRAT         GLPARFSGSGSGTEFTLTISSLQSEDFAVYYC         QQYNYWWT           263         GASIRAT         GLPARFSGSGSGTEFTLTISSLQSEDFAVYYC         QQYNYWWT           269         GASIRAT         GLPARFSGSGSGTEFTLTISSLQSEDFAVYYC         QQYNYWWT  | 9   | 280         | AASSLQS | GVPSRFSGSGSGTEFTLTISSLQPEDFATYYC | LQHNSYPRT      | FGQGTKVEIK |
| 28         PASSLQS         GVPSRFSGSGSCTEFTLTISSLQPEDFATYYC         LQHNSFPWT           -         KVWNWDS         GVPDRFSGSGSGTDFTLKISRVEAEDVGVYYC         MQGTHWP##LT           -         IGSNRAS         GVPDRFSGSGSGTDFTLKISRVEAEDVGVYYC         MQALQTWT           -         IGSNRAS         GVPDRFSGSGSGTDFTLKISRVEAEDVGVYYC         MQALQTWT           -         GASTRAT         GIPARFSGSGSGTDFTLKISRVEAEDVGVYYC         MQALQTWT           -         GASTRAT         GIPARFSGSGSGTDFTLTISSLQSEDFAVYYC         QQYNNWWT           263         GASIRAT         GLPARFSGSGSGTEFTLTISSLQSEDFAVYYC         QQYNYWWT           269         GASIRAT         GLPARFSGSGSGTEFTLTISSLQSEDFAVYYC         QQYNYWWT   | 64  | 282         | AASSLHS | GVPSRFSGSGSGTEFTLTISSLQPEDFATYYC | LQHNSYPWT      | FGQGTKVEIK |
| -         KVWNWDS         GVPDRFSGSGSGTDFTLKISRVEAAEDVGVYYC         MQGTHWP##LT           70         KVWNWDS         GVPDRFSGSGSGTDFTLKISRVEAAEDVGVYYC         MQALQTWT           -         I.GSNRAS         GVPDRFSGSGSGTDFTLKISRVEAAEDVGVYYC         MQALQTWT           -         I.GSYRAS         GVPDRFSGSGSGTDFTLKISRVEAAEDVGVYYC         MQALQTWT           -         GASTRAT         GIPPARFSGSGSGTEFTLTISSLQSEDFAVYYC         QQYNNWWT           250         GASIRAT         GLPPARFSGSGSGTEFTLTISSLQSEDFAVYYC         QQYNYWWT           263         GASIRAT         GLPPARFSGSGSGTEFTLTISSLQSEDFAVYYC         QQYNYWWT           269         GASIRAT         GLPPARFSGSGSGTEFTLTISSLQSEDFAVYYC         QQYNYWWT  | 16  | 28          | AASSLQS | GVPSRFSGSGSGTEFTLTISSLQPEDFATYYC | LOHNSFPWT      | FGQGTKVEIK |
| 70         KVWINWDS         GVPDRFSGSGSGTDFTLKISRVEAEDVGVYYC         MQGSHWPREFT           -         LGSNRAS         GVPDRFSGSGSGTDFTLKISRVEAEDVGVYYC         MQALQTWT           -         GASTRAT         GIPARFSGSGSGTDFTLKISRVEAEDVGVYYC         QQYNNWWT           250         GASIRAT         GLPARFSGSGSGTEFTLTISSLQSEDFAVYYC         QQYNYWWT           263         GASIRAT         GLPARFSGSGSGTEFTLTISSLQSEDFAVYYC         QQYNYWWT           269         GASIRAT         GLPARFSGSGSGTEFTLTISSLQSEDFAVYYC         QQYNYWWT   | 275 | ı           | KVWNWDS | GVPDRFSGSGSGTDFTLKISRVEAEDVGVYYC | MQGTHWP##LT    | FGGTKVEIK  |
| -         IGSNRAS         GVPDRFSGSGSGTDFTLKISRVEAAEDVGVYYC         MQALQTWT         MQALQTWT           145         IGSYRAS         GVPDRFSGSGSGTDFTLKISRVEAEDVGVYYC         MQALQTWT         RQXNNWWT           -         GASTRAT         GIPARFSGSGSGTEFTLTISSLQSEDFAVYYC         QQXNNWWT         R           250         GASIRAT         GLPARFSGSGSGTEFTLTISSLQSEDFAVYYC         QQXNYWWT         R           263         GASIRAT         GLPARFSGSGSGTEFTLTISSLQSEDFAVYYC         QQXNXWWT         R   | 20  | 70          | KVWNWDS | GVPDRFSGSGSTDFTLKISRVEAEDVGVYYC  | MQGSHWPREFT    | FGGGTKVEIK |
| 145         LGSYRAS         GVPDRFSGSGSGTDFTLKISRVEAEDVGVYC         MQALQIWT           -         GASTRAT         GIPARFSGSGSGTEFTLTISSLQSEDFAVYC         QQYNNWWT           250         GASIRAT         GLPARFSGSGSGTEFTLTISSLQSEDFAVYC         QQYNYWWT           263         GASIRAT         GLPARFSGSGSGTEFTLTISSLQSEDFAVYC         QQYNYWWT           269         GASIRAT         GLPARFSGSGSGTEFTLTISSLQSEDFAVYC         QQXNXWWT   | 276 | ı           | LGSNRAS | GVPDRFSGSGSGTDFTLKISRVEAEDVGVYYC | MOALOTWT       | FGQGTKVEIK |
| -         GASTRAT         GIPARFSGSGSCTEFTLTISSLQSEDFAVYYC         QQYNNWWT           250         GASIRAT         GLPARFSGSGSCTEFTLTISSLQSEDFAVYYC         QQYNYWWT           263         GASIRAT         GLPARFSGSGSCTEFTLTISSLQSEDFAVYYC         QQYNYWWT           269         GASIRAT         GLPARFSGSGSCTEFTLTISSLQSEDFAVYYC         QQYNYWWT  | 36  | 145         | LGSYRAS | GVPDRFSGSGSTDFTLKISRVEAEDVGVYYC  | MQALQTWT       | FGQGTKVEIK |
| 250 GASIRAT GLPARFSGSGSGTEFTLTISSLQSEDFAVYYC QQYNYWWT 263 GASIRAT GLPARFSGSGSGTEFTLTISSLQSEDFAVYYC QQYNYWWT GLPARFSGSGSGTEFTLTISSLQSEDFAVYYC QQYNYWWT QLPARFSGSGSGTEFTLTISSLQSEDFAVYYC QQYNYWWT  | 277 | 1           | GASTRAT | GIPARFSGSGSGTEFTLTISSLOSEDFAVYYC | LMMNINĀÕÕ      | FGQGTKVEIK |
| 263 GASIRAT GLPARFSGSGSGTEFTLTISSLQSEDFAVYYC QQYNYWWT GLPARFSGSGSGTEFTLTISSLQSEDFAVYYC QQYNYWWT QQYNYWWT   | 48  | 250         | GASIRAT | GLPARFSGSGSGTEFTLTISSLQSEDFAVYYC | .I.MM.K.N.K.ÖÖ | FGQGTKVEIK |
| 269 GASIRAT GLPARFSGSGSGTEFTLTISSLQSEDFAVYYC QQYNYWWT  | 52  | 263         | GASIRAT | GLPARFSGSGSGTEFTLTISSLQSEDFAVYYC | QQYNYWWT       | FGQGTKVEIK |
|  | 99  | 269         | GASIRAT | GLPARFSGSGSGTEFTLTISSLQSEDFAVYYC | ZMMXNXÖÖ       | FGQGTKVEIK |

| CHAIN | SEQ ID<br>NO: |                       | FR1   | CDR1       | FR2                                   | CDR2                  | FR3                                  | CDR3                  | FR4          |
|-------|---------------|-----------------------|---|------------|---------------------------------------|-----------------------|--------------------------------------|-----------------------|--------------|
|       | 278           | Germline              | QVQLVESGGGVVQPGRSLRLS<br>CAAS               | GFTFSSYGMH |                                       | VIWYDGSNKYY<br>ADSVKG | RFTISRDNSKNTLYLQMNSLR<br>AEDTAVYYCAR |                       |              |
| 2.14  | 132           | VH3-33/D6-<br>19/JH6b | QVQLVESGGGVVQPGRSLRLS<br>CAAS               | GLIFSSYGMH | WVRQAPGKGLE<br>WVA                    | VIWYDGSNKYY<br>ADSVKG | RFTISRDNSKNTLYLQMNSLR<br>AEDTAVYYCAR | ERDSSGWYYYG<br>MDV    | SSALALLÐÕÐM  |
| 2.13  | 128           | E                     | QVQLVESGGGVVQPGRSLRLS<br>CAAS               | GLIFSNYGMH | WVRQAPGKGLE<br>WVA                    | VIWYDGSNKYY<br>ADSVKG | RFTISRDNSKNTLYLQMNSLR<br>AEDTAVYYCAR | EGIAVAGPPYY<br>YYGMDV | WGQGTTVTVSS  |
| 2.10  | 124           | =                     | QVQLVESGGGVVQPGRSLRLS<br>CAAS               | GFTFSSYGMH | WVRQAPGKGLE<br>WVA                    | VIWYDGSIKYY<br>ADSVKG | RFTISRDNSKNTLYLQMNSLR<br>AEDTAVYYCAR | ERDSSGWYYYG<br>MDV    | WGQGTTVTVSS  |
|       | 279           | Germline              | EVQLLESGGGLVQPGGSLRLS<br>CAAS               | GFTFSSYAMS | WVRQAPGKGLE<br>WVS                    | AISGSGGSTYY<br>ADSVKG | RFTISRDNSKNTLYLQMNSLR<br>AEDTAVYYCAK |                       | SSALATLEÕEM  |
| 4.23  | 262           | VH3-23/D3-<br>22/JH4b | EVQLLESGGGLVQPGGSLRLS<br>CAAS               | GFTFSSYAMS | WVRQAPGKGLE<br>WVS                    | AISGSGGSTYY<br>ADSVKG | RFTISRDNSKNTLYLQMNSLR<br>AEDTAVYYCAK | DYYDSSGYHPF<br>DY     | WGQGTLVTVSS  |
|       | 280           | Germline              | EVQLVESGGGLVKPGGSLRLS<br>CAAS               | GFTFSSYSMN | WVRQAPGKGLE<br>WVS                    | SISSSSSYIYY<br>ADSVKG | RFTISRDNAKNSLYLQMNSLR<br>AEDTAVYYCA# |                       | MGQGTTVTVSS  |
| 2.21  | 158           | VH3-21/D1-<br>20/JH6b | EVQLVESGGGLVKPGGSLRLS<br>CAAS               | GFTFSSYSMN | WVRQAPGKGLE<br>WVS                    | SISSSSSYIYY<br>ADSVKG | RFTISRDNAKNSLYLQMNSLR<br>AEDTAVYYCAR | GGITGTTNYYG<br>MDV    | WGQGTTVTVSS  |
|       | 281           | Germline              | QVQLVESGGGVVQPGRSLRLS<br>CAAS               | GFTFSSYGMH | WVRQAPGKGLE<br>WVA                    | VIWYDGSNKYY<br>ADSVKG | RFTISRDNSKNTLYLQMNSLR<br>AEDTAVYYCAR |                       | MGQGTLVVTVSS |
| 4.7   | 198           | VH3-33/D6-<br>19/JH4b | QVQLVESGGGVVQPGRSLRLS<br>CAAS               | GFTFSSYGMH | WVRQAPGKGLE<br>WVA                    | IIWYDGSNEYY<br>GDSVKG | RFTISRDNSKNTLFLQMNSLR<br>AEDTAVYYCAR | DPLRIVVAGDF<br>DY     | WGQGTLVTVSS  |
| 4.11  | 214           | =                     | QVQLVESGGGVVQPGRSLRLS<br>CAAS               | GFTFSSYGMH | WVRQAPGKGLE<br>WVA                    | IIWYDGSNEYY<br>GDSVKG | RFTISRDNSKNTLFLQMNSLR<br>AEDTAVYYCAR | DPLRIVVAGDF<br>DY     | WGQGTLVTVSS  |
|       | 282           | Germline              | EVQLVESGGGLIQPGGSLRLS<br>CAAS               | GFTVSSNYMS | WVRQAPGKGLE<br>WVS                    | VIYSGGSTYYA<br>DSVKG  | RFTISRDNSKNTLYLQMNSLR<br>AEDTAVYYCAR |                       | WGQGTMVTVSS  |
| 3.9   | 186           | VH3-53//JH3b          | EVQLVESGGGLIQPGGSLRLS<br>CAAS               | GFTVSSNYMS | WVRQAPGKGLE<br>WVS                    | VIYSGGSTYYA<br>DSVKG  | RFTISRDNSKNTLYLQMNSLR<br>AEDTAVYYCAR | GPGAFDI               | MGQGTMVTVSS  |
| 3.8   | 182           | =                     | EVQLVESGGGLIQPGGSLRLS<br>CAAS               | GFTVSNNYMH | WVRQAPGKGLE<br>WVS                    | VIYSGGNTYYA<br>DSVKG  | RFTISRDNSKNTLFLQMNSLK<br>TEDTAVYYCAR | GPGAFDI               | WGQGTMVTVSS  |
|       | 283           | Germline              | EVQLVQSGAEVKKPGESLKIS<br>CKGS               | GYSFTSYWIG | WVRQMPGKGLE<br>WMG                    | IIYPGDSDTRY<br>SPSFQG | QVTISADKSISTAYLQWSSLK<br>ASDTAMYYCAR |                       | SSALALLÐÖÐM  |
| 2.4   | 100           | VH5-51/D3-3/JH6b      | VH5-51/D3-3/JH6b EVQLVQSGAEVKKPGESLKIS CKGS | GYSFTSDWIG | WVRQMPGKGLE<br>WMG                    | IIYPGDSDTRY<br>SPSFQG | QVTISADKSITTAYLQWSSLK<br>ASDTAMYYCAR | SGYGMDV               | MGQGTTVTVSS  |
|       | 284           | Germline              | QVQLVQSGABVKKPGASVKVS<br>CKAS               | GYTFTSYGIS | WVRQAPGQGLE<br>WMG                    | WISAYNGNTNY<br>AQKLQG | RVTMTTDTSTSTAYMELRSLR<br>SDDTAVYYCAR |                       | MGQGTLVTVSS  |
| 3.4   | 170           | VH1-18/D6-<br>19/JH4b | QVQLVQSGAEVKKPGASVKVS<br>CKAS               | GYTFTFYSIT | WVRQAPGQGLE<br>WMG                    | WISAYNDNTNY<br>AQKLQG | RVTMTTDTSTSTAYMELRSLR<br>SDDTAVYYCAR | TFTSGFDY              | MGQGTLVTVSS  |
|       | 285           | Germline              | QVQLVESGGGVVQPGRSLRLS<br>CAAS               | GFTFSSYGMH | WVRQAPGKGLE VIWYDGSNKYY<br>WVA ADSVKG | VIWYDGSNKYY<br>ADSVKG | RFTISRDNSKNTLYLQMNSLR<br>AEDTAVYYCAR |                       | MGQGTLVTVSS  |

Table 33. Hybridoma Heavy Chain Analysis AB-TNFα-XG2

| FR4           |                               | WGQGILATVSS                   | WGQGILATVSS                   | WGQGTLAAVSS                   | MGQGTLVTVSS                   | SSAIATIBÕÐM                   | MGQGTTVTVSS                          | WGQGTTVTVSS                          | WGQGTTVTVSS                   | WGQGTTVTVSS                             | MGQGTTVTVSS                          | WGQGTTVTVSS                   | MGQGTTVTVSS                   | MGQGTTVTVSS                          | MGQGTTVTVSS                          | MGQGTLVTVSS                          | WGQGTLVTVSS                          | WGQGTLVTVSS                          | WGQGTLVTVSS                          | WGQGTTVTVSS                          |
|---------------|-------------------------------|-------------------------------|-------------------------------|-------------------------------|-------------------------------|-------------------------------|--------------------------------------|--------------------------------------|-------------------------------|---|--------------------------------------|-------------------------------|-------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|
| CDR3          | ESDYGGNPYFD<br>Y              | ESDYGGYPYFD<br>Y              | ESDYGGYPYFD<br>Y              | ESDYGGNPYFD<br>Y              |                               | GTGAFDY                       |                                      | ENAVTYGGYYH<br>YGMDV                 |                               | SLGGMDV                                 | SLGGMDV                              | ACMOOTS                       |                               | ETTVTKEGYYY<br>YGMDV                 | ETTVTKEGYYY<br>YGMDV                 |                                      | DPITETMEDYF<br>DY                    |                                      | SNWGLDY                              |                                      |
| FR3           |                               |                               |                               |                               |                               |                               | RFTISRDNSKNTLYLQMNSLR<br>AEDTAVYYCAR | RFTISRDNSKNTLYLQMNSLR<br>AEDTAVYYCAR |                               |   | RFTISRDNAKNSLYLQMNSLR<br>AEDTAVYYCAR |                               | _                             | RFTISRDNSKNTLYLQMNSLR<br>AEDTAVYYCAR | RFTISRDNSKNTLYLQMNSLR<br>AEDTAVYYCAR | RVTMTTDTSTSTAYMELRSLR<br>SDDTAVYYCAR | RVTMTTDTSTNTAYMELRSLR<br>SDDTAVYYCAR | QVTISADKSISTAYLQWSSLK<br>ASDTAMYYCAR | QVTISADKSISTAYLQWSSLK<br>ASDTAMYYCAR | RFTISRDNSKNTLYLQMNSLR<br>AEDTAVYYCAR |
| CDR2          | VIWYDGSNKYY<br>GDSVKG         | VIWHDGSNKYY<br>ADSVKG         | VIWHDGSNKYY<br>ADSVKG         | VIWYDGSNKYY<br>ADSVKG         | VIYSGGSTYYA<br>DSVKG          | VIYNAGSAYYA<br>DSVKG          | VISYDGSNKYY<br>ADSVKG                | IISYDGSIKYY<br>ADSVKG                | YISSSGSTIYY<br>ADSVKG         | YISRSGSTIYY<br>ADSVKG                   | YISRSGSTIYY<br>ADSVKG                | YISRSGSTIYY<br>ADSVKG         | VIWYDGSNKYY<br>ADSVKG         | VIWYDGSNKYY<br>ADSVKG                | VIWYDGSNKYY<br>ADSVKG                | WISAYNGNTNY<br>AQKLQG                | WISAYNVNTNY<br>AQKLQG                | IIYPGDSDTRY<br>SPSFQG                | IIYLGDSDTRY<br>SPSFQG                | VIWYDGSNKYY<br>ADSVKG                |
| FR2           | WVRQAPGKGLE<br>WVA            | WVRQAPGKGLE<br>WVA            | WVRQAPGKGLE<br>WVA            | WVRQAPGKGLE<br>WVA            | WVRQAPGKGLE<br>WVS            | WVRQAPGKGLE<br>WVS            | WVRQAPGKGLE<br>WVA                   | WVRQAPGKGLE<br>WVA                   | WIRQAPGKGLE<br>WVS            | WIRQAPGKGLE<br>WVS                      | WIRQAPGKGLE<br>WVS                   | WIRQAPGKGLE<br>WVS            | WVRQAPGKGLE<br>WVA            | WVRQAPGKGLE<br>WVA                   | WVRQAPGKGLE<br>WVA                   | WVRQAPGQGLE<br>WMG                   | WVRQAPGQGLE<br>WMG                   | WVRQMPGKGLE<br>WMG                   | WVRQMPGKGLE<br>WMG                   | WVRQAPGKGLE<br>WVA                   |
| CDR1          | GFTFSSYGMN                    | GFTFSSYGMH                    | GFTFSSYGMH                    | GFTFSSYGMH                    | GFTVSSNYMS                    | GFTVSSNYVN                    | GFTFSSYGMH                           | GFTFSSYDMH                           | GFTFSDYYMS                    | GFTFSDYYMS                              | GFTFSDYYMS                           | GFTFSDYYMS                    | GFTFSSYGMH                    | GFTFSSYGMH                           | GFTFSSYGMH                           | GYTFTSYGIS                           | GYTFTSYGIS                           | GYSFTSYWIG                           | GYSFTSYWIG                           | GFTFSSYGMH                           |
| FR1           | QVQLVESGGGVVQPGRSLRLS<br>CAAS | QVHLVESGGGVVQPGRSLRLS<br>CAAS | QVHLVESGGGVVQPGRSLRLS<br>CAAS | QVQLVESGGGVVQPGRSLRLS<br>CAAS | EVQLVESGGGLIQPGGSLRLS<br>CAAS | EVQLVESGGGLIQPGGSLRLS<br>CAAS | QVQLVESGGGVVQPGRSLRLS<br>CAAS        | QVQLVESGGGVVQPGRSLRLS<br>CAAS        | QVQLVESGGGLVKPGGSLRLS<br>CAAS | VH3-11//JH6b QVQLVESGGGLVKPGGSLRLS CAAS | QVQLVESGGGLVKPGGSLRLS<br>CAAS        | QVQLVESGGGLVKPGGSLRLS<br>CAAS | QVQLVESGGGVVQPGRSLRLS<br>CAAS | QVQLVESGGGVVQPGRSLRLS<br>CAAS        | QVQLVESGGGVVQPGRSLRLS<br>CAAS        | QVQLVQSGAEVKKPGASVKVS<br>CKAS        | QVQLVQSGAEVKKPGASVKVS<br>CKAS        | EVQLVQSGAEVKKPGESLKIS<br>CKGS        | EVQLVQSGAEVKKPGESLKIS<br>CKTS        | QVQLVESGGGVVQPGRSLRLS<br>CAAS        |
|               | VH3-33/D4-<br>23/JH4b         | E                             | Ξ                             | =                             | Germline                      | VH3-53/D7-<br>27/JH4b         | Germline                             | VH3-30/D4-<br>17/JH6b                | Germline                      | VH3-11//JH6b                            | =                                    | =                             | Germline                      | VH3-33/D4-<br>17/JH6b                | =                                    | Germline                             | VH1-18/D1-7/JH4b                     | Germline                             | VH5-51/D7-<br>27/JH4b                | Germline                             |
| SEQ ID<br>NO: | 96                            | 202                           | 194                           | 190                           | 286                           | 144                           | 287                                  | 222                                  | 288                           | 84                                      | 140                                  | 148                           | 289                           | 218                                  | 206                                  | 290                                  | 108                                  | 291                                  | 166                                  | 292                                  |
| CHAIN         | 2.3                           | 4.8                           | 4.4                           | 4.3                           |                               | 2.17                          |                                      | 4.13                                 |                               | 1.1                                     | 2.16                                 | 2.18                          |                               | 4.12                                 | 4.9                                  |                                      | 2.6                                  |                                      | 3.2                                  |                                      |

| FR4           | WGQGTTVTVSS                   | WGQGTTVTVSS                   | WGQGTTVTVSS                   | WGQGTTVTVSS                   | WGQGTTVTVSS                   | WGQGTTVTVSS                          | WGQGTLVTVSS                   | WGQGTTVTVSS                          | WGQGTLVTVSS                   | WGQGTLVTVSS                          | WGQGTLVTVSS                          | WGQGTLVTVSS                          | WGQGTLVTVSS                   | WGQGTLVTVSS                          | WGQGTTVTVSS                          | WGQGTTVTVSS                          | WGQGTTVTVSS                          | WGQGTTVTVSS                          | WGQGTTVTVSS                          | WGQGTTVTVSS                          |
|---------------|-------------------------------|-------------------------------|-------------------------------|-------------------------------|-------------------------------|--------------------------------------|-------------------------------|--------------------------------------|-------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|-------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|
| CDR3          |                               | EKDCGGDCYSH<br>YGMDV          |                               | EKDCGGDCYSH<br>YGMDV          |                               | DDXXXGMDV                            |                               | ESDYGGNPYFD<br>Y                     |                               | DRFTSGWFDY                           |                                      | GPGGFDY                              |                               | GPGSFDY                              |                                      | APLWTVRSWYY<br>YGMDV                 |                                      | DLTYYDILGGM<br>DV                    | DLTYYDILGGM<br>DV                    | DLTYYDILGGM<br>DV                    |
| FR3           |                               |                               |                               |                               |                               | RFTISRDNSKNTLYLQMNSLR<br>AEDTAVYYCAR |                               | RFTISRDNSKNTLYLQMNSLR<br>AEDTAVYYCAR |                               | RVTISVDTSKNQFSLKLRSVT<br>AADTAVYYCAR | RFTISRDNAKNSLYLQMNSLR<br>DEDTAVYYCAR | RFTISRDNAKNSLYLQMNSLR<br>DVDTAVYHCAR |                               | RFTISRDNSKNTLYLQMNSLR<br>AEDTAVYYCAR | RVTMTRDTSISTAYMELSRLR<br>SDDTAVYYCAR | RVTMTRDTSISTAYMELSRLR<br>SDDTAVYYCAR | RFTISRDNSKNTLYLQMNSLR<br>AEDTAVYYCAR | RFTISRDNSKNTLNLQMNSLR<br>AEDTAVYYCAR | RFTISRDNSKNTINLQMNSLR<br>AEDTAVYYCAR | RFTISRDNSKNTLNLOMNSLR<br>AEDTAVYYCAR |
| CDR2          | VIWYDGSIKYY<br>VDSVKG         |                               | VIWYDGSIKYY<br>VDSVKG         | VIWYDGSIKYY<br>VDSVKG         | VIWYDGSNKYY<br>ADSVKG         | IIWYDGSNKYY<br>ADSVKG                | VIWYDGSNKYY<br>ADSVKG         | VIWYDGNNKYY<br>ADSVKG                | YIYYSGSTNYN<br>PSLKS          | YFYYSGSTNYN<br>PSLKS                 | YISSSSTIYY<br>ADSVKG                 | YISNSITSKYY<br>ADSVKG                | VIYSGGSTYYA<br>DSVKG          | VIYSGGGTYYA<br>DSVKG                 | WINPNSGGTNY<br>AQKFQG                | WINPNSGGTNY<br>AQKFQG                | VIWYDGSNKYY<br>ADSVKG                | VIWYDGRNKYN<br>ADSVKG                | VIWYDGRNKYN<br>ADSVKG                | VIWYDGRNKYN<br>ADSVKG                |
| FR2           | WVRQAPGKGLE<br>WVA            | WVRQAPGKGLE<br>WVA            | WVRQAPGKGLE<br>WVA            | WVRQAPGKGLE<br>WVA            | WVRQAPGKGLE<br>WVA            | WVRQAPGKGLE<br>WVA                   | WVRQAPGKGLE<br>WVA            | WVRQAPGKGLE<br>WVA                   | WIRQPPGKGLE<br>WIG            | WIRQPPGKGLE<br>WIG                   | WVRQAPGKGLE<br>WVS                   | WVRQAPGKGLE<br>WVS                   | WVRQAPGKGLE<br>WVS            | WVRQAPGKGLE<br>WVS                   | WVRQAPGQGLE<br>WMG                   | WVRQAPGQGLE<br>WMG                   | WVRQAPGKGLE<br>WVA                   | WVRQAPGKGLE<br>WVA                   | WVRQAPGKGLE<br>WVA                   | WVRQAPGKGLE<br>WVA                   |
| CDR1          | GFTFSNYGMH                    |                               |                               | GFTFSNYGMH                    | GFTFSSYGMH                    | GFTFSSSGMH                           | GFTFSSYGMH                    | GFTFSSYGMH                           | GGSISSYYWS                    | GGSISSYYWS                           | GFTFSSYSMN                           | GFTFSNYGMN                           | GFTVSSNYMS                    | GFTVSSNYMS                           | GYTFIGYYMH                           | GYTFTGYYMH                           | GFTFSSYGMH                           | GFTFSSYGMH                           | GFTFSSYGMH                           | GFTFSSYGMH                           |
| FR1           | QVQLVESGGGVVQPGRSLRLS<br>CTTS | QVQLVESGGGVVQPGRSLRLS<br>CTTS | QVQLVESGGGVVQPGRSLRLS<br>CTTS | QVQLVESGGGVVQPGRSLRLS<br>CTTS | QVQLVESGGGVVQPGRSLRLS<br>CAAS | QVQLVESGGDVVQPGRSLRLS<br>CAAS        | QVQLVESGGGVVQPGRSLRLS<br>CAAS | QVQLVESGGGVVQPGRSLRLS<br>CAAS        | QVQLQESGPGLVKPSETLSLT<br>CTVS | QVQLQESGPGLVKPSETLSLT<br>CTVS        | EVQLVESGGGLVQPGGSLRLS<br>CAAS        | EVQLVESGGGLVQPGGSLRLS<br>CAAS        | EVQLVESGGGLIQPGGSLRLS<br>CAAS | EVQLVESGGGLIQPGGSLRLS<br>CAAS        | QVQLVQSGAEVKKPGASVKVS<br>CKAS        | QVQLVQSGAEVKKPGASVKVS<br>CKAS        | QVQLVESGGGVVQPGRSLRLS<br>CAAS        |                                      | QVQLVESGGGVVQPGRSLRLS<br>CAAS        | QVQLVESGGGVVQPGRSLRLS<br>CAAS        |
|               | VH3-33/D2-<br>21/JH6b         | =                             | =                             | =                             | Germline                      | VH3-33//JH6b                         | Germline                      | VH3-33/D4-<br>23/JH4a                | Germline                      | VH4-59/D6-<br>19/JH4b                | Germline                             | VH3-48/D1-<br>14/JH4b                | Germline                      | VH3-53//JH4b                         | Germline                             | VH1-2/D6-19/JH6b                     | Germline                             | VH3-33/D3-9/JH6b                     | =                                    | =                                    |
| SEQ ID<br>NO: | 234                           | 230                           | 226                           | 238                           | 293                           | 88                                   | 294                           | 92                                   | 295                           | 178                                  | 296                                  | 258                                  | 297                           | 120                                  | 298                                  | 162                                  | 299                                  | 246                                  | 242                                  | 116                                  |
| CHAIN         | 4.16                          | 4.15                          | 4.14                          | 4.17                          |                               | 2.1                                  |                               | 2.2                                  |                               | 3.6                                  |                                      | 4.22                                 |                               | 2.9                                  |                                      | 3.1                                  |                                      | 4.19                                 | 4.18                                 | 2.8                                  |

| FR4           | WGQGTTVTVSS  |             | MGQGTTVTVSS                                       |             | WGQGTTVTVSS             |             | MGQGTTVTVSS           |             | WGQGTTVTVSS  |             | WGQGTTVTVSS                            |             | WGQGTTVTVSS             |             | ENTMVRGGDYY WGQGTTVTVSS | -           | MGQGTLVTVSS                            | •           | MGQGTLVTVSS                                   |             | MGQGTTVTVSS             |             | MGQGTTVTVSS                                   |             |     |
|---------------|--|-------------|---|-------------|-------------------------|-------------|-----------------------|-------------|--|-------------|--|-------------|-------------------------|-------------|-------------------------|-------------|--|-------------|---|-------------|-------------------------|-------------|---|-------------|-----|
| CDR3          | DLTYYDILGGM  | DV          | DLTYYDILGGM                                       | DV          |                         |             | GEGGMDV               |             | GEGGMDV  |             |  |             | ENTMVRGGDYY WGQGTTVTVSS | YGMDV       |                         | YGMDV       |  |             | SRYGDWGWFDP                                   |             |                         |             | GNRVVVAGTRV                                   | TPANWGYYYYG | MDV |
| FR3           | GFTFSSYGMH WVRQAPGKGLE VIWYDGRNKYN RFTISRDNSKNTLNLQMNSLR DLTYYDILGGM WGQGTTVTVSS | AEDTAVYYCAR | RFTISRDNSKNTLNLQMNSLR   DLTYYDILGGM   WGQGTTVTVSS | AEDTAVYYCAR | RFTISRDNSKNTLYLQMNSLR   | AEDTAVYYCAR | RFTISRDNSKNTLYLQMNSLR | AEDTAVYYCAR | GFTVSSNYMS   WVRQAPGKGLE   VIYSGGSTYYA   RFTISRDNSKNTLYLQMNSLR | AEDTAVYYCAR | RFTISRDNSKNTLYLQMNSLR                  | AEDTAVYYCAR | RFTISRDNSKNTLYLQMNSLR   | AEDTAVYYCAR | RFTISRDNSKNTLYLQMNSLR   | AEDTAVYYCAR | RFTISRDNSKNTLYLQMNSLR                  | AEDTAVYYCAR | RFTISRDNSKNTLYLQMNSLR SRYGDWGWFDP WGQGTLVTVSS | AEDTAVYYCAR | RFTISRDNSKNTLYLQMNSLR   | AEDTAVYYCAR | RFTISRDNSKNTLYLQMNSLR GNRVVVAGTRV WGQGTTVTVSS | AEDTAVYYCAR |     |
| CDR2          | VIWYDGRNKYN  | ADSVKG      | VIWYDGRNKYN                                       | ADSVKG      | VIYSGGSTYYA             | DSVKG       | VIYSGGSTYYA           | DSVKG       | VIYSGGSTYYA  | DSVKG       | VIWYDGSNKYY                            | ADSVKG      | WVRQAPGKGLE VIWYDGSNKYH | ADSVKG      | VIWYDGSNKYH             | ADSVKG      | AXMSSCAMIA                             | ADSVKG      | VIWYDGSNKYY                                   | ADSVKG      | WVRQAPGKGLE VIWYDGSNKYY | ADSVKG      | VIWYDGSNKYY                                   | ADSVKG      |     |
| FR2           | WVRQAPGKGLE  | WVA         | GFTFSSYGMH WVRQAPGKGLE VIWYDGRNKYN                | WVA         | WVRQAPGKGLE VIYSGGSTYYA | WVS         | WVRQAPGKGLE           | WVS         | WVRQAPGKGLE  | WVS         | GFTFSSYGMH   WVRQAPGKGLE   VIWYDGSNKYY | WVA         | WVRQAPGKGLE             | WVA         | WVRQAPGKGLE             | WVA         | GFTFSSYGMH   WVRQAPGKGLE   VIWYDGSNKYY | WVA         | GFTFSSYGMH WVRQAPGKGLE VIWYDGSNKYY            | WVA         | WVRQAPGKGLE             | WVA         | WVRQAPGKGLE                                   | WVA         |     |
| CDR1          | GFTFSSYGMH   |             | GFTFSSYGMH  |             | GFTVSSNYMS              |             | GFTVSSNYMS            |             | GFTVSSNYMS   |             | GFTFSSYGMH                             |             | GFTFSSYDMH              |             | GFTFSSYDMH              |             | GFTFSSYGMH                             |             | GFTFSSYGMH                                    |             | GFTFSSYGMH              |             | GFTFSSYGMH                                    |             |     |
| FR1           | QVQLVESGGGVVQPGRSLRLS  | CAAS        | QVQLVESGGGVVQPGRSLRLS                             | CAAS        | EVQLVESGGGLIQPGGSLRLS   | CAAS        | EVQLVESGGGLIQPGGSLRLS | CAAS        | EVQLVESGGGLIQPGGSLRLS  | CAAS        | QVQLVESGGGVVQPGRSLRLS                  | CAAS        | QVQLVESGGGVVQPGRSLRLS   | CAAS        | QVQLVESGGGVVQPGRSLRLS   | CAAS        | QVQLVESGGGVVQPGRSLRLS                  | CAAS        | QVQLVESGGGVVQPGRSLRLS                         | CAAS        | QVQLVESGGGVVQPGRSLRLS   | CAAS        | QVQLVESGGGVVQPGRSLRLS                         | CAAS        |     |
|               | п  |             | п   |             | Germline                |             | q9нг//εs-енл          |             | ¥  |             | Germline                               |             | VH3-33/D3-              | 10/JH6b     | П                       |             | Germline                               |             | VH3-33/D4-                                    | 17/JH5b     | Germline                |             | VH3-33/D6-19-D7-                              | 27/JH6b     |     |
| SEQ ID<br>NO: | 250  |             | 112   |             | 300                     |             | 152                   |             | 136  |             | 301                                    |             | 104                     |             | 174                     |             | 302                                    |             | 210   |             | 303                     |             | 254   |             |     |
| CHAIN         | 4.20   |             | 2.7   |             |                         |             | 2.19                  |             | 2.15   |             |  |             | 2.5                     |             | 3.5                     |             |  |             | 4.10  |             |                         |             | 4.21  |             |     |

Table 34. Hybridoma Light Chain Analysis AB-TNFα-XG2K

| FR4           | FGGGTKLTVL                           | FGGGTKLTVL                           | FGGGTKLTVL                           | FGGGTKVEIK                           | FGGTKVEIK                            | FGGGTKVEIK                           |
|---------------|--------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|
| CDR3          | OSYDSSLSGSV                          | OSYDSSLSGSV                          | QSYDSSLSGSV                          | LJAKSMHÖT                            | LQHNSYPLT                            | LQHNSYPLT                            | LJAKSNHÕI                            | тлалѕмно́л                           | LQHMSLPLT                            | LQHRSYPLT                            | тлалѕмнол                            | LQHNPYPPRLT                          | тлалѕмнол                            | LQHNSYPLT                            | LQHNSYPLT                            | IJAISNHÕI                            | LQHNSYPLT                            | LQHNSYPLT                            |
| FR3           | GVPDRFSGSKSGTSASLAITG<br>LQAEDEADYYC | GVPDRFSGSKSGTSASLAITG<br>LQAEDEADYYC | GVPDRFSGSKSGTSASLAITG<br>LQAEDETDYYC | GVPSRFSGSGSGTEFTLTISS<br>LQPEDFATYYC | GVPSRFSGSGSGTEFTLTISS<br>LQPEDFATYYC | GVPSRFSGSGSGTEFTLTISS<br>LQPEDFATYYC | GVPSRFSGSGSGTEFTLTISS<br>LQPEDFATYYC | GVPSRFSGSGSGTEFTLTISS<br>LQPEDFATYYC | GVPSRFSGSGSGTEFTLTISS<br>LQPEDFATYYC | GVPSRFSGSRSGTEFTLTISS<br>LQPEDFASYYC | GVPSRFSGSGSGTEFTLTISS<br>LQPEDFATYYC | GVPSRFSGSGSGTEFTLTISS<br>LQPEDFTTYYC | GVPSRFSGSGSGTEFTLTISS<br>LQPEDFATYYC | GVPSRFSGSGSGTEFTLTISS<br>LQPEDFATYYC | GVPSRFSGSGSGTEFTLTISS<br>LQPEDFATYYC | GVPSRFSGSGSGTEFTLTVSS<br>LQPEDFATYYC | GVPSRFSGSGSGPEFTLTISS<br>LQPEDFATYYC | GVPSRFSGSGSGPEFTLTISS<br>LQPEDFATYYC |
| CDR2          | GNSNRPS                              | GNSNRPS                              | GNSNRPS                              | AASSLQS                              | AASSLQS                              | VASSLQS                              | GASSLQS                              | AASSLQS                              | AASSLQS                              | AASSLQS                              | AASSLQS                              | AASNFLS                              | AASSLQS                              | AASSLQS                              | AASSLQS                              | AASSLQS                              | AASSLQS                              | AASSLQS                              |
| FR2           | WYQQLPGTAPK<br>LLIY                  | WYQQFPGTAPK<br>LLIY                  | WYQQLPGTAPK<br>LLIY                  | WYQQKPGKAPK<br>RLIY                  | WYQQKPGKAPK<br>RLIY                  | WYQQKPGKAPK<br>CLIY                  | WYQQKPGKAPE<br>RLIY                  | WYQQKPGKAPK<br>RLIY                  | WYQQKPGKAPK<br>RLIY                  | WYQQKPGKAPK<br>RLIY                  | WYQQKPGKAPK<br>RLIY                  | WFQQKPGKAPK<br>RLIY                  | WYQQKPGKAPK<br>RLIY                  | WYQQKPGKAPK<br>RLIY                  | WYQQKPGKAPK<br>RLIY                  | WYQQKPGKAPK<br>RLIY                  | WYQQKPRKAPK<br>RLIF                  | WYQQKPRKAPK<br>RLIF                  |
| CDR1          | TGSSSNIGAGY<br>DVH                   | TGSSSNIGAGY<br>DVH                   | TGNSSNIGAGY<br>DVH                   | RASQGIRNDLG                          | SVGDRVTI RASQGIRNDLG WYQQKPGKAPK     | RASQGIRNDLG WYQQKPGKAPK              | ASVGDRVTI RASQGIRHDLG WYQQKPGKAPE    | SVGDRVII RASQGIRNDIG WYQQKPGKAPK     | RASQGIRNDLG                          | RASQAIRNDLG                          | RASQGIRNDLG                          |
| FR1           | QSVLTQPPSVSGAPGQRVTIS<br>C           | QSLLTQPPSVSGAPGQRVTIS<br>C           | QSVLTQPPSVSGAPGLRVTIS<br>C           | DIQMTQSPSSLSASVGDRVTI<br>TC          | DIQMTQSPSSLSTSVGDRVTI<br>TC          | DIQMTQSPSSLSASVGDRVTI<br>TC          | DIQMTQSPSSLSASVGDRVTI<br>TC          | DIQMTQSPSSLSASVGDRVTI<br>TC          | DIQMTQSPSSLSASVGDRVTI<br>TC          |
|               | Germline                             | V1-13/JL2                            | п                                    | Germline                             | A30/JK4                              | =                                    | =                                    | =                                    | =                                    | =                                    | =                                    | =                                    | =                                    | =                                    | =                                    | E                                    | <b>=</b>                             | E                                    |
| SEQ ID<br>NO: | 304                                  | 102                                  | 200.                                 | 305                                  | 208                                  | 256                                  | 252                                  | 240                                  | 236                                  | 134                                  | 232                                  | 188                                  | 228                                  | 224                                  | 220                                  | 126                                  | 180                                  | 176                                  |
| CHAIN<br>NAME |                                      | 2.4                                  | 4.7                                  |                                      | 4.9                                  | 4.21                                 | 4.20                                 | 4.17                                 | 4.16                                 | 2.14                                 | 4.15                                 | 3.9                                  | 4.14                                 | 4.13                                 | 4.12                                 | 2.10                                 | 3.6                                  | 3.5                                  |

| FR4           | PET FEBGTKVDIK                       | PFT FGPGTKVDIK                       | PGQGTKVEIK                           | PWT FGQGTKVEIK                        | PEGGTRLEIK                           | LIT FGQGTRLEIK                       | LIT FGQGTRLEIK  | LIT FGQGTRLEIK                       | LIT FGQGTRLEIK                       | SAGV FGGGTKLTVL                      | SAGV FGGGTKLTVL                      | SAGV FGGGTKLTVL                   | PIT FGQGTRLEIK                       | PFT FGQGTRLEIK                       | SAGV FGGGTKLTVL                   | SAGV FGGGTKLTVL                   | PWT FGQGTKVEIK                       | WT FGOGTKVEIK         |
|---------------|--------------------------------------|--------------------------------------|--------------------------------------|---------------------------------------|--------------------------------------|--------------------------------------|---|--------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|-----------------------------------|--------------------------------------|--------------------------------------|-----------------------------------|-----------------------------------|--------------------------------------|-----------------------|
| CDR3          | QKYNSAPFT                            | QMYNSVPFT                            | LMdasnhõt                            | IMGXSNHÖT                             | <b>LIGISKSÕÕ</b>                     | TITLESSÕÕ                            | QQSSSTLIT   | QQSSSTLIT                            | TITLESSÕÕ                            | GIWDSSLSAGV                          | GTWDSSLSAGV                          | GTWDSSLSAGV                       | QQYNNWPIT                            | QQYNNWPFT                            | GTWDSSLSAGV                       | GAWDSSLSAGV                       | QQANSFPWT                            | QQANSFPWT             |
| FR3           | GVPSRFSGSGSGTDFTLTISS<br>LQPEDVATYYC | GVPSRFSGSGSGTDFTLTVSS<br>LQPEDVATYYC | GVPSRFSGSGSGTEFTLTISS<br>LQPEDFATYYC | GVPSRFSGSGSGTEFTLTISS<br>LQPEDFATYYC  | GVPSRFSGSGSGTDFTLTISS<br>LQPEDFATYYC | GVPSRESGSGSGTDFTLTISS<br>LQPEDFATYYC | GVPSRFSGSGSGTDFTLTISS<br>LQPEDFATYYC                  | GVPSRFSGSGSGTDFTLTISS<br>LQPEDFATYYC | GVPSRISGSGSGTDFTLTISS<br>LHPEDFATYYC | GIPDRFSGSKSGTSATLGITG<br>LQTGDEADYYC | GIPDRESGSKSGTSATLGITG<br>LQTGDEADYYC | GIPDRESGSKSGTSATLGITG LQTGDEADYYC | GIPARFSGSGSGTEFTLTISS<br>LQSEDFAVYYC | GIPARFSGSGSGTEFTLTISS<br>LQSEDFAVYYC | GIPDRESGSKSGTSATLGITG LQTGDEADYYC | GIPDRESGSKSGTSATLVITG LQTGDEADYYC | GVPSRFSGSGSGTDFTLTISS<br>LQPEDFATYYC | GVPSRFSGSGSGTDFTLTISS |
| CDR2          | AASTLQS                              | AASTLQS                              | AASSLQS                              | VASSLQS                               | AASSLQS                              | AASNLQS                              | AASNLQR   | AAFNLQS                              | AAFNLQS                              | DNNKRPS                              | DNNKRPS                              | DNNSRPS                           | GASTRAT                              | GASTRAT                              | DNNKRPS                           | DNNKRPS                           | AASSLQS                              | AASSLQS               |
| FR2           | WYQQKPGKVPK<br>LLIY                  | WYQQKPGKVPK<br>FLIY                  | WYQQKPGKAPK<br>RLIY                  | WYQQKPGKAPK<br>CLIY                   | WYQQKPGKAPK<br>LLIY                  | WYQQKPGKAPE<br>LLIY                  | WYQQKPGKAPE<br>VLIY                                   | WYHQKPGKAPE<br>LLIY                  | WYQQKPGKAPE<br>LLIY                  | WYQQLPGTAPK<br>LLIY                  | WYQQLPGIAPK<br>LLIY                  | WYQQFPGTAPK<br>LLIY               | WYQQKPGQAPR<br>LLIY                  | WYQQKPGQAPR<br>LLIY                  | WYQQLPGTAPK<br>LLIY               | WCQQLPRTAPK<br>LLIY               | WYQQKPGKAPK<br>LLIY                  | WYQQKPGKAPK           |
| CDR1          | RASQGISNYLA WYQQKPGKVPK              | RASQGISNYLA                          | RASQGIRNDLG                          | SVGDRVTI RASQGIRNDLG WYQQKPGKAPK CLIY | RASQSISSYLN WYQQKPGKAPK              | RTSQSISSYLN WYQQKPGKAPE              | RTSQSISSYLN   | ASVGDRVTI RTSQSISSYLN                | RTSQSISSYLN                          | SGSSSNIGNNY<br>VS                    | SGSSSNIGNNY<br>VS                    | SGSSSNIGNNY<br>VS                 | RASQSVSSNLA                          | RASQSATSNLA                          | SGSSSNIGNNY<br>VS                 | SGSSSNIGSNY<br>VS                 | RASQGISSWLA                          | RASQGISSWLA           |
| FR1           | DIQMTQSPSSLSASVGDRVTI<br>TC          | DIQMTQSPSSLSASVGDRVTI<br>TC          | DIQMTQSPSSLSASVGDRVTI<br>TC          | DIQMTQSPSSLSASVGDRVTI<br>TC           | DIQMTQSPSSLSASVGDRVTI<br>TC          | DIQMTQSPSSLSASVGDRVAI<br>TC          | DIQMTQSPSSLSASVGDRVTI RTSQSISSYLN WYQQKPGKAPE TC VLIY | DIQMTQSPSSLSASVGDRVTI<br>TC          | DIQMTQSPSSLSASVGDRVTI<br>TC          | QSVLTQPPSVSAAPGQKVTIS<br>C           | QSVLTQPPSMSAAPGQKVTIS<br>C           | QSVLTQPPSVSAAPGQKVTIS<br>C        | EIVMTQSPATLSVSPGERATL<br>SC          | EIVMTQSPATLSVSPGERVTL<br>SC          | QSVLTQPPSVSAAPGQKVTIS<br>C        | QSALTQPPSVSAAPGQKVTIS C           | DIQMTQSPSSVSASVGDRVTI<br>TC          | DIOMTQSPSSVSASVGDRVTI |
|               | Germline                             | A20/JK3                              | Germline                             | A30/JK1                               | Germline                             | 012/JK5                              | Ε   | =                                    | =                                    | Germline                             | V1-19/JL3                            | =                                 | Germline                             | L2/JK5                               | Germline                          | V1-19/JL2                         | Germline                             | L5/JK1                |
| SEQ ID<br>NO: | 306                                  | 264                                  | 307                                  | 260                                   | 308                                  | 142                                  | 156   | 150                                  | 160                                  | 309                                  | 164                                  | 98                                | 310                                  | 184                                  | 311                               | 06                                | 312                                  | 122                   |
| CHAIN         |                                      | 4.23                                 |                                      | 4.22                                  |                                      | 2.16                                 | 2.19  | 2.18                                 | 2.21                                 |                                      | 3.1                                  | 1.1                               |                                      | 3.8                                  |                                   | 2.1                               |                                      | 2.9                   |

| Germline   | RASQSVSSNLA   WYQQKPGQAPR   | L         |                                       |             |            |
|--|---|-----------|---------------------------------------|-------------|------------|
| L2/JK4   | ASQSVISNLA WYQQQPGQAE ASQSVSSNLA WYQQKPGQAE LLIY LLIY ASQSVSSNLA WYQQKPGQAE | K GASTKAT | GIPARFSGSGSGTEFTLITISS<br>LQSEDFAVYYC | TJAMNNAÕÕ   | FGGGTKVEIK |
| EIVWTQSPATLSVSPGERATL   SC   SC   L2/JK3   EIVWTQSPATLSVSPGERATL   SC   SC   SC   SC   SC   SC   SC   SC   | ASQSVSSNLA WYQQKPGQAF LLIY ASQSVSSNLA WYQQKPGQAF LLIY                       | R GASTRAT | GFPARFSGSGSGTEFTLTISS<br>LQSEDFAVYYC  | OOYNNWPLT   | FGGGTKVEIK |
| Germline   |   | R GASTRAT | GIPARFSGSRTGTEFTLTISS<br>LQSEDFAVYYC  | QQYNNWPLT   | FGGGTKVEIK |
| L2/JK3 EIVWTQSPATLSVSPGERATL  SC  " EIVWTQSPSTLSVSPGERATL SC  Germline QSVLTQPPSASGTPGQRVTIS C  V1-16/JL3 QSVLTQPPSASGTPGQRVTIS C  V2-13/JL3 QSVLTQPPSASGTPGQRVTIS C  Germline SSELTQDPAVSVALGQTVRIT C  C  V2-13/JL3 SSELTQDPAVSVALGQTVRIT C  Germline SYELTQDPSVSVSPGQTARIT C  C  C  C  C  C  C  C  C  C  C  C  C   |   | R GASTRAT | GIPARFSGSGSGTEFTLTISS<br>LQSEDFAVYYC  | QQYNNWPFT   | FGPGTKVDIK |
| EIVMTQSPSTLSVSPGERATL   SC   SC     BIVMTQSPSTLSVSPGERATL   SC   SC     Germline   QSVLTQPPSASGTPGQRVTIS     V1-16/JL3   QSVLTQPPSASGTPGQRVTIS     Germline   SSELTQDPAVSVALGQTVRIT     V2-13/JL3   SSELTQDPAVSVALGQTVRIT     Germline   SYELTQDPAVSVALGQTVRIT     Germline   SYELTQDPSVSVSPGQTARIT     C   V2-7/JL2   SYELTQPPSVSVSPGQTARIT     Germline   SYELTQPPSVSVSPGQTARIT     Germline   DIQMTQSPSSLSASVGDRVTI     TC     TC | RASQSVTSNLA WYQQKPGQAPR   |           | GIPARESGSGSGTEFTLTISS<br>LPSEDFAVYYC  | QQYHTWPFT   | FGPGTKVDIK |
| Germline GSVLTQPPSASGTDEGRATL SC CV1-16/JL3 QSVLTQPPSASGTDEGRVTIS C CGermline SSELTQDPAVSVALGQTVRIT C CC C V2-13/JL3 SSELTQDPAVSVALGQTVRIT C C C C C C Germline SYELTQDPSVSVSPGQTARIT C C C C C C C C C C C C C C C C C C C  | RASQSVSSNLA WYQQKPGQAPR   | R GASIRAT | GIPARFSGSGSGTEYTLTISS<br>LQSEDFAVYYC  | QQYNNWPFT   | FGPGTKVDIK |
| Germline   QSVLTQPPSASGTPGQRVTIS   C   | RASQSVTSNLA WYQQKPGQAPR   | R GASTRAT | GIPARESGSGSGTEFTLTISS<br>LPSEDFAVYYC  | QQYHTWPFT   | FGPGTKVDIK |
| V1-16/JL3   QSVLITQPPSASGTPGQRVTIS   C   Germline   SSELTQDPAVSVALGQTVRIT   C   C   C   C   C   C   C   C   C  | SGSSSNIGSNT WYQQLPGTAPK VN LLIY   | K SNNQRPS | GVPDRFSGSKSGTSASLAISG<br>LQSEDEADYYC  | AAWDDSLNGPV | FGGGTKLTVL |
| Germline   SSELTQDPAVSVALGQTVRIT   C   C   C   C   C   C   C   C   C   | SGSSSNIGSNT WYQQLPGTAPK VN LLIY   | K SNNQRPS | GVPDRFSGSKSGTSASLAISG<br>LQSEDEADYYC  | AAWDDSLNGPV | FGGGTKLTVL |
| V2-13/JL3 SSELTQDPAVSVALGQTVRIT  " SSELTQDPAVSVALGQTVRIT C C C C C C V2-7/JL2 SYELTQPPSVSVSPGQTARIT C Germline C SYELTQPPSVSVSPGQTARIT C C C C C C C C C C C C C C C C C C C   | QGDSLRSYYAS WYQQKPGQAPV   | V GKNNRPS | GIPDRESGSSSGNTASLTITG<br>AQAEDEADYYC  | NSRDSSGNHLV | FGGGTKLTVL |
| Germline SYELTQDPAVSVALGQTVRIT  C C C C C V2-7/JL2 SYELTQPPSVSVSPGQTARIT C Germline DIQMTQSPSSLSASVGDRVTI TC   | QGDSLRRYYAS WYQQKPGQAPI   | I GKNNRPS | GIPDRESGSSSGNTASLTITG AQAEDEADYYC     | NSRDSSGNHLV | FGGGTKLTVL |
| Germline SYELTQPPSVSVSPGQTARIT C C C C C C C C C C C C C C C C C C C   | QGDSLRRYYAS WYQQKPGQAPI   | I GKNNRPS | GIPDRFSGSSSGNTASLTITG<br>AQAEDEADYYC  | NSRDSSGNHLV | FGGTKLTVL  |
| V2-7/JL2 SYELTQPPSVSVSPGQTARIT C Germline DIQMTQSPSSLSASVGDRVTI TC TC TC TC TC TC TC   |   | V EDSKRPS |                                       | YSTDSSGNHVV | FGGTKLTVL  |
| Germline DIQMTQSPSSLSASVGDRVTI  TC  018/JK5 DIQMTQSPSSLSASVGDRVTI  TC  | SGDALPKKYVY WYQQKSGQAPV   | V EDSKRPS | GIPERFSGSSSGTMATLTING<br>AQVEDEADYYC  | YSTDSSGNHVV | FGGGTKLTVL |
| 018/JKS DIQMTQSPSSLSASVGDRVTI<br>TC  | QASQDISNYLN WYQQKPGKAPK   | K DASNLET | GVPSRFSGSGSGTDFTFTISS<br>LQPEDIATYYC  | QQYDNLPIT   | FGQGTRLEIK |
|  | QASQDISNYLN WYQQKPGKAPK   | K DASNLET | GVPSRFSGSGSGTDFTFTISS<br>LQPEDIATYYC  | носригрн    | FGQGTRLEIK |
| SSELTQDPAVSVALGQTVRIT C  |   | V GKNNRPS | GIPDRFSGSSSGNTASLTITG<br>AQAEDEADYYC  | NSRDSSGNHVV | FGGTKLTVL  |
| 98 V2-13/JL2 SSELTQDPAVSVALGQTVRIT C   | QGDSLRIYYAS WYQQKPGQAPV   | V GKNNRPS | GIPDRESGSSSGNTASLIVTG<br>AQAEDEADYYC  | KSRDSSFNHVT | FGGGTKLTVL |
| " SSELTQDPAVSVALGQTVRIT  | QGDSLRNYYAS WYQQKPGQAPI   | I GKNNRPS | GIPDRFSGSSSGNTASLTITG<br>AQAEDEADYYC  | NSRDSSGNHVT | FGGTKLTVL  |
| 192 " SSELTQDPAVSVALGQTVRIT C  | QGDSLRSYYAS WYQQKPGQAPV   | V GKNNRPS | GIPDRFSGSSSENTASLTITG<br>AQAEDEADYYC  | KSRDSSFNHVT | FGGGTKLTVL |